

26 October 2021

To: Editor, ACP PEEEX Part II special issue

This a cover letter for a R1-R2-R3 reply of manuscript to ACP PEEEX Special Issue by Hanna K. Lappalainen, Tuukka Petäjä, Timo Vihma, Jouni Räisänen, Alexander Baklanov, Sergey Chalov, Igor Esau, Ekaterina Ezhova, Matti Leppäranta, Dmitry Pozdnyakov, Jukka Pumpanen, Meinrat O. Andreae, Mikhail Arshinov, Eija Asmi, Jianhui Bai, Igor Bashmachnikov, Boris Belan, Federico Bianchi, Boris Biskaborn, Michael Boy, Jaana Bäck, Bin Cheng, Natalia Ye Chubarova, Jonathan Duplissy Egor Dyukarev, Konstantinos Eleftheriadis, Martin Forsius, Martin Heimann, Sirkku Juhola, Vladimir Konovalov, Igor Konovalov, Pavel Konstantinov, Kajar Koster, Elena Lapsina, Anna Lintunen, Alexander Mahura, Risto Makkonen, Svetlana Malkhazova, Ivan Mammarella, Stefano Mammola, Stephany Buenrostro Mazon, Outi Meinander, Eugene Mikhailov, Victoria Miles⁶, Stanislav Myslenko⁵, Dmitry Orlov⁵, Jean-Daniel Paris²⁶, Roberta Pirazzini, Olga Popovicheva, Jouni Pulliainen, Kimmo Rautiainen, Torsten Sachs, Vladimir Shevchenko, Andrey Skorokhod, Andreas Stohl, Elli Suhonen, Erik S. Thomson, Marina Tsidilina, Veli-Pekka Tynkkynen, Petteri Uotila, Aki Virkkula, Nadezhda Voropay, Tobias Wolf, Sayaka Yasunaka, Jiahua Zhang, Yubao Qiu, Aijun Ding, Guo Huadong, Valery Bondur, Nikolay Kasimov, Sergej Zilitinkevich, Veli-Matti Kerminen and Markku Kulmala "*Recent advances on the understanding of the Northern Eurasian environments and of the urban air quality in China - Pan Eurasian Experiment (PEEX) program perspective*. The manuscript introduces the recent scientific results from the Northern Eurasia regions and China and summarize recent progress in the understanding of the land – atmosphere – ocean systems feedbacks. Although the scientific knowledge in these regions has increased, there are still gaps in our understanding of large-scale climate-Earth surface interactions and feedbacks.

We checked out the grammatics of the manuscript once more and made small corrections here and there.

Specific comment: Line 682: "*In addition to atmospheric chemistry, the connection between O₃, UV radiation and health effects needs to be addressed in the populated urban environments of Siberia. Chubarova et al. (2019) estimated that winter O₃ depletion in northern regions of Siberia is not critical, but much weaker O₃ reduction in the early spring can lead to dangerous levels of erythema UV radiation (see also section 2.4.3 Natural Hazards and UV variation) . "*

We have re-formulated: "*In addition to atmospheric chemistry, the connection between stratospheric O₃, UV radiation and health effects needs to be addressed in the populated urban environments of Siberia. Chubarova et al. (2019b) estimated that the wintertime O₃ depletion in northern regions of Siberia is not critical, but the much larger O₃ reductions observed in the early spring can lead to dangerous levels of erythema UV radiation (see also section 2.4.3 Natural Hazards and UV variation).*"

Sincerely yours,

Hanna.K. Lappalainen

Contact: INAR – Institute for Atmospheric and Earth System Research

Location Physicum, Kumpula campus, Gustaf Hällströmin katu 2, 00560 Helsinki, FINLAND

Hanna.k.lappalainen@helsinki.fi

cc Veli-matti.kerminen@helsinki.fi