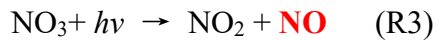
Dear Editor,

Thank you very much for your efforts in the article: egusphere-2023-1401.

Now the process is advanced to proofreading, and I find some mistakes that needed to be corrected.

- The reaction R3 at **section 1 Introduction** (line 21) was miswritten as:

$NO_3 + h\nu \rightarrow NO_2 + $ **NO**   (R3)

And the **right** reactions of NO3 photolysis are:

$NO_3 + h\nu \rightarrow NO_2 + $ **O**   (R3)

$NO_3 + h\nu \rightarrow NO + O_2$ (R4)

Please modify this part as following and where I make changes were showing in red: (Line 11, page 2 in the proofreading)

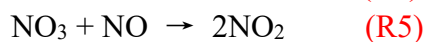
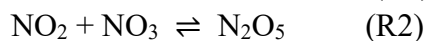
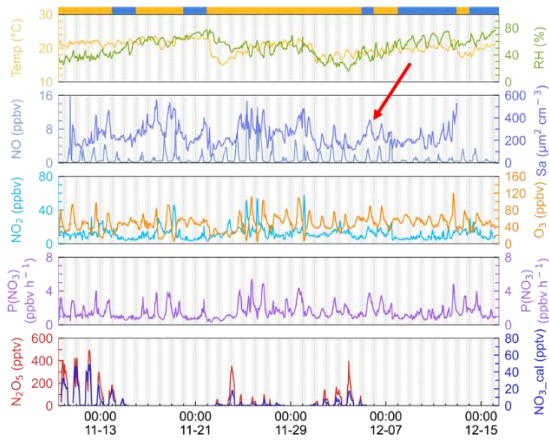
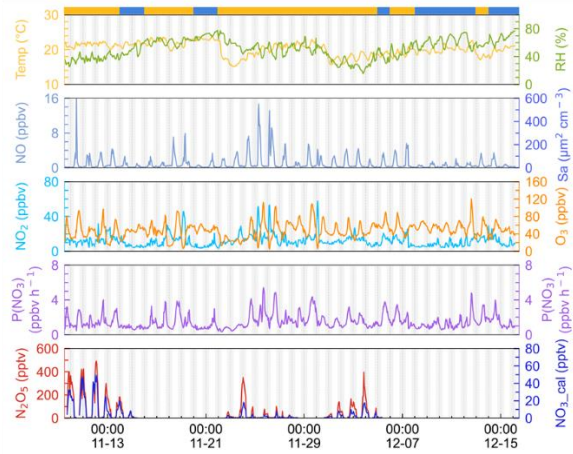
During daytime, the NO_3 mixing ratio is generally low as its lifetime is very short (< 5 s) due to the fast photolysis (Reactions R3 and R4) and rapid reaction with NO (Reaction R5) (a rate constant of 2.6×10^{-11} cm^3 $molec.^{-1}$ s^{-1} at 298 K, Atkinson et al., 2004). At night, NO_3 accumulates and can reach tens to hundreds of parts per trillion by volume (pptv), making it the major nocturnal oxidizing agent (Wang et al., 2015).

$NO_2 + O_3 \rightarrow NO_3 + O_2$ (R1)

$NO_2 + NO_3 \rightleftharpoons N_2O_5$ (R2)

$NO_3 + h\nu \rightarrow NO_2 + O$ (R3)

$NO_3 + h\nu \rightarrow NO + O_2$ (R4)

$NO_3 + NO \rightarrow 2NO_2$ (R5)

- In Figure 2, the image of Sa (μm^2 cm^{-3}) (as pointed by the red arrow) was missing in the proofreading, and I provided the original version I submitted at the first time. There was no any change in content as well as form compared to the original except displaying the image of Sa. Please replace the Figure 2 in proofreading with the corrected version attached in the email.

Thank you very much in advance for your cooperation. I am looking forward to your reply.

Best regards,
Jie Wang