Line 59. I would erase "the overwhelming programming effort and", because in many cases, the adjoint equation has the same form as the equations to be solved for the forward problem, so that the same code can be used for both the forward problem and the adjoint equation.

Lines 172 & 173. Sentence "Details… in Chen et al. (2021).." can be erased.

Line 271. Correct "note" as "noted".

Line 286. Correct "trail-and-error".

Lines 408 & 409. Expression "Here we applied the multiplicative noise is intended" should be corrected.

Lines 413 to 418. The effect of a possible instrumental drift is not strictly related to the proportionality of the error on the measured value.

Line 610. "range between $9.05 \times 10^{-5} \sim 1.32 \times 10^{-4}$ (corresponding to logarithmic values of -4.04~-3.88" should be substituted with "range between 9.05×10^{-5} and 1.32×10^{-4} (corresponding to logarithmic values between -4.04 and -3.88".