

Response Letter to Editor

Please be aware of the formatting of all responses:

1. Reviewer comment in **black**, response in **blue** and quotation from the main text in **red**;
2. The line number is based on the clean version of the revised manuscript, not the track change version

Comments to the author:

Looks great, thanks for making those improvements. The only remaining thing is that I'm not sure what you mean with this:

“Meanwhile, we have calculated the uncertainty of mesocosm measurement due to converting hourly data to daily data during 30-80 days by using augmented value minus mean of the augmented values (-10.2 to 10.4 mg N m⁻² day⁻¹, and standard deviation = 1.4 mg N m⁻² day⁻¹). KGML-ag1 during the same period has comparable uncertainties based on ensemble simulations (calculated by ensemble value minus mean of ensemble values; -14.4 to 15.2 mg N m⁻² day⁻¹, with standard deviation = 1.3 mg N m⁻² day⁻¹).”

Specifically, the ranges you provide of -10.2 to 10.4 and -14.4 to 15.2: Are those the lower and upper limits of all the differences? I think it would be less confusing to just provide the standard deviations.

Response: We really appreciate the editor's quick response and valuable comments. The editor is correct that the ranges of -10.2 to 10.4 mg N m⁻² day⁻¹ and -14.4 to 15.2 mg N m⁻² day⁻¹ are lower and upper limits of all differences for augmented mesocosm observed data and model simulated data, respectively. It would be good to have those limits to indicate that not only the standard deviations of the uncertainties from observed data and simulated data are similar, but also the ranges are largely overlapped. We totally agree with the editor that it might be confusing if we only include the range values but not any other descriptions. Thus we have added more descriptions to explain the range values and revised the sentences in the section 3.3 first paragraph (line 405 to 410) to clearly express the uncertainty comparisons:

“Meanwhile, we have calculated the uncertainty of mesocosm measurement due to converting hourly data to daily data during 30-80 days by using augmented values minus the mean of the augmented values with lower and upper limits being -10.2 and 10.4 mg N m⁻² day⁻¹, respectively (standard deviation = 1.4 mg N m⁻² day⁻¹). KGML-ag1 during the same period has comparable uncertainties based on ensemble simulations with lower and upper limits being -14.4 and 15.2 mg N m⁻² day⁻¹, respectively (calculated by ensemble values minus the mean of ensemble values; standard deviation = 1.3 mg N m⁻² day⁻¹).”