

REFEREE 2

The article compares 3 models to analyze carbon sequestration in urban vegetation (irrigated and non-irrigated lawns, park trees, and urban forests). The study considered various parameters such as soil moisture and temperature, sap flow, leaf area index, momentary photosynthesis, soil respiration, and net ecosystem exchange. Evaluation of all these parameters and their presentation makes this article a bit complicated. Repetition at many places in the Discussion makes it too lengthy.

Dear Reviewer, thank you for your feedback! We have considered all comments and revised the manuscript accordingly, have carefully revised the Discussion to avoid repetition and excessive length. Below you can find the responses provided point by point below.

The Abstract sufficiently represents all aspects of the research work.

The introduction is properly written with clear aims and objectives. In some places (P2L28-28), a few unrelated topics may be removed.

As suggested, we removed the air quality and recreation from the list of ecosystem services provided by urban green spaces.

Materials and Methods is somewhat lengthy. It should be precise and easy to understand.

We agree that Materials and Methods is lengthy, but there were so many different study sites, unique observations and models together with the irrigation schemes, that it is challenging to describe all clearly but shortly without losing replicability. We read the section carefully and deleted some sentences for example in the model description where some of the original information given was not relevant for the study.

Observation represents all aspects of the study. In P10L250 is Momentary photosynthesis GPP? Make it clear.

Indeed, we mean the same thing with GPP and photosynthesis. In the original manuscript, we used the term *momentary photosynthesis* to make a clear difference between the 30 min average and daily mean or cumulative sum. However, we have revised the terminology based on the comments by #R1 and we do not use momentary photosynthesis any longer.

The results of the study are clearly presented. In P13L338 it is written “**The soil was moister in 2020 than 2021**”, but data for 2020 is not graphically presented as to compare with 2021.

The figure for 2020 is in the Supplement. To make it clearer, we added a sentence about it, and now it reads: “ Soil moisture in the urban forest and park sites for 2020 is shown in Fig. S3.

The discussion contains repetition at places.

We have carefully reviewed the discussion section and removed the first paragraph, for example, as it was not relevant and included some repetition.

References are sufficiently provided.