Reviewer's comments:

There is substantially more content included in this revision, and most of it is helpful. However, I became lost in the organization; much of the new material is new analyses that are explained in the results rather than the methods. Finally, now that the flux weighting is easier to understand, it brought to mind two questions: (1) should the PET weighting be modified by a pan coefficient, or does that cancel out? And (2) what are the consequences for using a mass-based model of isotopic evolution rather than a time-based model, i.e., what are the consequences of ignoring isotopic equilibration with atmospheric vapor at times when evaporation is small? Non-evaporative equilibration should be a greater effect when pan volumes are low and pan-water isotopic composition is far from the atmosphere, both of which are most important later in the experimental period. Reliance on the mass-based model has resulted in an error of interpretation that evaporation can cause isotopic depletion, when in fact it is isotopic exchange that is responsible and that overwhelms the evaporative distillation (see common L214).

English suggestions: L46 "composition"; L84 try "require" instead of determine; L200 "is" not feasible; L204 fails "if" … and then omit comma L205.

L60 this last sentence is ambiguous: errors occur when both conditions are the case, or is only one of them enough?

L109 both light- and heavy species certainly did both evaporate and condense because exchange with vapor is ongoing all the time. I think the intent here is to investigate net mass fluxes?

L120 evaporation is not zero at night. More important, however, is that equilibration between liquid and vapor does not stop at night. Gonfiantini's (1986) equation describes progression toward equilibrium through mass-loss space as evaporation progresses in steady-state conditions. The experiment, therefore, at least partially tests whether there were important variations in atmospheric vapor at night that affected the assumption of equilibration through mass space.

L120 a pan coefficient is appropriate here as well.

L131 LEL and LMWL are not defined.

L144 which one is the last figure? There is a caption that says everything that L144 does, and L144 can be removed and the figure cited on L145. This style of repeating caption material in the text is consistent throughout sec 3, and I think it makes it difficult to follow the story.

L210 atmospheric vapor is not always in equilibrium with precipitation, even when humidity is high, so this sentence assumes too much. For example, humidity in coastal regions or wetlands may occasionally bear little resemblance to precipitation.

L214 importantly, evaporation does not cause depletion in this case. Rather, back-equilibration overwhelms the evaporative distillation. Just because the models are expressed in mass space does not mean that net mass flux is alone responsible for the fractionation.

L225 it is a little misleading to say that time averaging made a larger difference when residual volume was lower. It's true, but it directs attention to the wrong place. Time averaging introduces errors into alpha and h, but those do not depend on the residual volume. I think it's better to say that errors are propagated more strongly when volumes are low.

Responses:

We want to acknowledge the Editor for these notes that helped us to deliberate some aspects and improve the clarity of the paper.

- New analyses in the Results and Discussion section:

We reviewed the Results and Discussion section and did not found methods not described in the Data and Methods section. The main new material is Figure 7 that synthesises the isotopic evolution of the pool water during the experiment. This graph is just a new representation of the results of pool water analyses and equations (2) and (4) with some simple recalculations. Therefore, we prefer to present Figure 7 in the section it is currently in.

- Should the PET weighting be modified by a pan coefficient, or does that cancel out?:

As the final target of this work is the application of the method to a wide range of natural pools and the use of PET is not to predict pan water evaporation but only to weight the atmospheric conditions, we decided to test the operational FAO Penman-Monteith equation parameterized as for reference evapotranspiration, without any pan coefficient. When we compared the PET predicted *versus* observed decreases of water volume in the pan, we found that the pan coefficient decreased from an initial value of 0.80 to a final value of 0.42. We attributed this decrease to the increasing role of pan walls hindering the aeration of the water surface. Fortunately, as suggested by the reviewer, the pan coefficient cancels out when the resulting evaporative demand is used for weighting relative air humidity and temperature.

-What are the consequences for using a mass-based model of isotopic evolution rather than a time-based model, i.e., what are the consequences of ignoring isotopic equilibration with atmospheric vapor at times when evaporation is small?:

Our data consist of weekly measures of pan water volume along with isotopic composition of pan water and precipitation. With these data we deemed that the best option was using the Gonfiantini (1986) equation, , assuming that the atmospheric conditions and air moisture isotopic composition remain fairly constant between sampling dates. We have no temporally finer data on water volume and isotopic compositions adequate for a time-based modelling.

We first tested the hypothesis that fractionation can be predicted by evaporation following Gonfiantini (1986) equation parameterized with time-averaged h and T). This hypothesis was rejected due to the prediction of an earlier and deeper isotopic depletion than observed. Then we tested the hypothesis that fractionation can be predicted by evaporation following Gonfiantini (1986) equation parameterized with flux-averaged h and T. This approximation give us adequate results.

We do not deny some possible role of non-evaporative isotopic equilibration during the night but the experiment didn't allow us to validate it, this would require another experimental design.

- English suggestions: L46 "composition"; L84 try "require" instead of determine; L200 "is" not feasible; L204 fails "if" … and then omit comma L205: taken into account.

- L60 this last sentence is ambiguous: errors occur when both conditions are the case, or is only one of them enough?: this sentence has been rewritten accordingly.

- L109 both light- and heavy species certainly did both evaporate and condense because exchange with vapor is ongoing all the time. I think the intent here is to investigate net mass fluxes?: this sentence has been rewritten accordingly.

- L120 evaporation is not zero at night. More important, however, is that equilibration between liquid and vapor does not stop at night. Gonfiantini's (1986) equation describes progression toward equilibrium through mass-loss space as evaporation progresses in steady-

state conditions. The experiment, therefore, at least partially tests whether there were important variations in atmospheric vapor at night that affected the assumption of equilibration through mass space: This would need data and discussion that is beyond the frame of this technical note. The purpose here is just to flux-weight the meteorological variables as recommended by several authors. We changed 'when evaporation is inactive' into 'when evaporation is the lowest'.

- L120 a pan coefficient is appropriate here as well: the fact that a pan coefficient was not necessary because it becomes cancelled out is stated here.

- L131 LEL and LMWL are not defined: LEL and LMWL are now defined here.

- L144 which one is the last figure? There is a caption that says everything that L144 does, and L144 can be removed and the figure cited on L145. This style of repeating caption material in the text is consistent throughout sec 3, and I think it makes it difficult to follow the story: This suggestion has been taken into account and several changes in the writing are made for avoiding repetition with figure captions.

- L210 atmospheric vapor is not always in equilibrium with precipitation, even when humidity is high, so this sentence assumes too much. For example, humidity in coastal regions or wetlands may occasionally bear little resemblance to precipitation: this sentence has been rewritten accordingly.

- L214 importantly, evaporation does not cause depletion in this case. Rather, back-equilibration overwhelms the evaporative distillation. Just because the models are expressed in mass space does not mean that net mass flux is alone responsible for the fractionation : this sentence has been rewritten accordingly.

- L225 it is a little misleading to say that time averaging made a larger difference when residual volume was lower. It's true, but it directs attention to the wrong place. Time averaging introduces errors into alpha and h, but those do not depend on the residual volume. I think it's better to say that errors are propagated more strongly when volumes are low: The role of both the cumulative effect of underestimation of δ^* and increased error propagation is now considered as causes of increasing errors in the later steps of the experiment.