The authors would like to thank the reviewers for their positive comments and for the time dedicated to our manuscript. We have addressed the points raised by the reviewers, below are our responses and the actions taken for every comment.

Anonymous Referee #2

… **Besides the functions and dependencies presented in the manuscript I would only recommend to show a dependency of the optimal buffer volume on the flow and the number of measurement points.**

We added few more sentences in the manuscript (Section 2.3.2 P6L7, Section 3.2 P7L21) to clarify the rational of presenting the results in terms of residence time (the ratio of volume size and flow rate) instead of buffer volumes. Given that infinite combination of buffer volumes and flows produce the same residence time we consider this latter metric more appropriate for the definition of the optimal setups. Using the residence time instead of volume and flow we reduce the analyses by one dimension and, given an optimal residence time, the dependence of the optimal buffer volume on the flow is purely linear (i.e. doubling the flow would translate in doubling the volume in order to maintain the optimal residence time). The dependency of residence time on the number of sampling points in reported in Figure 6.

Below the sentences we added:

Section 2.3.2 P6L7

"In the present work we focus both the theoretical framework and the analysis of the results on the concept of optimal residence time (τ) computed as the ratio of volume size and flow rate. Infinite combinations of volume size and flow rate give the same residence time and therefore can produce similar performance for the monitoring system. Given an optimal residence time, the ideal combination of BV size and flow rate has to be selected according to the technical specification of the analyser and of the other components of the sampling system (e.g. pumps, valves, etc.). In general, the use of higher flow rates allows the reduction of the purging time, and therefore increases the effective time of signal sampling."

Section 3.2 P7L21

"The optimal τ and the number of points show a strong linear relationship for all sites and sampling schemes (Fig. 6). These optimal τ can be obtained with different combinations of BV volume size and flow rate, among which one can chose the more convenient for the given instrumental set-up."

Minor remarks P3L4: "closed-path" instead of "close-path" P3L8: please indicate the type of the ultrasonic anemometer (HS?, R3?)

The typos were corrected in the manuscript and the information on the ultrasonic anemometers was added.

Anonymous Referee #3

In the abstract or conclusion, it is better to say explicitly or highlight that your newly-explored method is weighted arithmetic means (WAM).

Following the suggestion we specified the use of weighted arithmetic means in the abstract of the manuscript.

Abstract:

“Besides, we proposed a novel scheme to calculate half hourly weighted arithmetic means from discrete point samples, accounting for the probabilistic fraction of the signal generated in the averaging period.”

Also abstract and conclusion don’t need to be overlapped.

The Conclusions were modified in order to minimize the overlapping with the Abstract.