Interactive comment on "A novel permanent gauge-cam station for surface flow observations on the Tiber river" *by* F. Tauro et al.

Anonymous Referee #1

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The work presents an interesting test of the performances of a system for measuring surface flow velocity through video recording. The idea is not novel, but the application in a real-world field case-study is very useful in order to understand the potential of the approach for operational purposes. The authors have presented in a previous paper the results of a similar application with LSPIV methodology, but in the present work they compare such approach with a PTV algorithm, which performances appear very promising.

The paper is certainly within the scope of the journal, and interesting for both scientists and practitioners, but it needs a few clarifications and in particular:

1) The description of the events is very confusing: they should be three (see p. 2) but in section 4 (Case study) and in the conclusions only one event is cited) A full description

of the three events (and of their main features, that should illustrate different conditions in the three events: are they high or low flow periods? Which are the atmospheric and lighting conditions? Are there any differences in the amount and quality of the natural floating particles?) must be added in the case study section. And the results are now presented separately in two different tables that should be merged in one and should report exactly the same information for the 3 events, along with an interpretation of the results that highlights the differences in the three events. It follows that, in the present version, a straightforward interpretation of the results is not possible (also sections 4.1 and 4.2, in addition to the conclusions, seem to refer to one event only...)

2) More information is needed on the radar measurements and in particular it is necessary to know which area is monitored by such sensor (it should be shown on a map, to show the position in reference to the areas covered by the videos)

3) The distinction of the left and right images is not very clear to me... (one is with fish-eye and the other one not? Different lighting conditions too?) The perimeters of the two recorded areas should be shown in the same map with the radar-covered area and more explanations are needed to justify the strong difference in the corresponding results.

4) ll. 4-5 p. 7: please explain why the lighting conditions should affect more negatively the LSPIV than the PTV.

5) ll 8-9 p. 7: this sentence is not clear (what do you mean with 'stationary occurrence of tracers? Artificial seeding?)