

Interactive comment on “Technical Note: Surface water velocity observations from a camera: a case study on the Tiber River” by F. Tauro et al.

Anonymous Referee #1

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Review report on Technical Note: Surface water velocity observations from a camera: a case study on the Tiber River F. Tauro, G. Olivieri, A. Petroselli, M. Porfiri, and S. Grimaldi

General comments

This technical note presents the application of an image-based velocimetry technique applied to a flood event in the Tiber River, Italy.

Though the methods and experimental data are correctly introduced, I fear that there is no sufficient matter in the paper to be worth publishing, even as a technical note.

Specific comments

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It seems that the original velocimetry technique and the study site were already presented in another (quite interesting) paper (Tauro et al., 2014).

The case study is very limited, with only three image sequences and only fit-to-eye estimates as velocity references. Unfortunately, the differences between the sub-FOV velocities (v_m) and the reference velocities (v_s) are huge, and both do not vary in a consistent manner with Q and v_{rt} (from rating curve)... Fig. 6 is not convincing as well and validation data are lacking. Such results cannot support firm conclusions regarding the validation of the method.

There is no discussion of the ratio between the local velocity measured using the image technique and the discharge, or the cross-sectional average velocity (v_{rt}). The velocity measured at the free-surface and at the center of a central bridge arch is likely to be close to the maximum velocity within the cross-section. Ratios presented in Tab. 1 are very unusual, and the interpretation is limited because sub-FOV are different amongst the three tests.

The results are affected with numerous null or very low erroneous velocity vectors, as often occurs when LSPIV is applied to poor image and tracer conditions. This observation is not novel, and no strategy is proposed to cope with the necessary data screening.

Compared to other LSPIV applications to river velocity and discharge monitoring, the velocity results are not spatially distributed through the river section. Fixed surface velocity radars seem to be many advantages compared to the proposed technique: as cheap, more robust measurements, working even at night, etc.

Technical corrections

Tab. 1 beta is dimensionless. Fig. 1 Add scale and north References: many missing upper case letters

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 11, 11883, 2014.

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