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Interactive comment on "The SF3M approach to 3-D photo-reconstruction for non-expert users: application to a gully network" *by* C. Castillo et al.

Anonymous Referee #1

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For specific and technical comments please find attached a commented pdf-file of the manuscript with both content wise and technical notations.

General comments:

This valuable paper presents a well-timed contribution to the current developments in photo-reconstruction and closes a gap for users from various disciplines. As discussed in earlier publications a demand for a straightforward workflow for image based surface reconstruction existed since open source tools (such as vSFM, CloudCompare or meshlab) emerged throughout the last years.

The here presented publication introduces SF3M as a new open source GUI that avoids switching between software including tedious steps of data preparation such as consid-

ering different file types for different tools or formatting .asc-files with point cloud data. The functionality of the tool is achieved by combining the great software CMVS/PMVS (Furukawa and Ponce) respectively the according GUI approach named visualSFM (Wu), various Matlab scripts and point cloud editing tools (filters) from CloudCompare (Girardeau-Montaut).

During this review the program was tested with an own (UAV) datasets. Results proved to be of high quality (dense reconstruction showed very little noise in the point cloud), calculating times were fast and the process all in all stable. In comparison to commercial equivalents the operability can be improved in certain aspects but this also goes along with other open source tools. Final assumptions on the performance of SF3M are not yet to be made as it needs to withstand a trial phase of inexperienced users and different data sets. Nevertheless, first test runs are very promising.

The overall quality of the manuscript is high and with only one exception (description of the "SFM precision") very comprehensible. The structure and figures are appropriate. A minor improvement could be achieved by a clear separation of both methods applied: On the one hand the authors present a new approach for data acquisition with a pole and two GoPros and a long walking itinerary while on the other introducing a novel software tool. A clearer distinction between both parts could be given in the introduction. Still, the here described campaign of gully measurement is a good choice to demonstrate the capabilities of the method due to the inherent morphologic complexity of gully systems. As mentioned above, the presented work has the potential to play an important role for DEM generation for non-expert users in various geoscientific contexts.

After minor revisions, mainly a few typing errors and suggestions, I fully recommend and support the publication of the manuscript.

Please also note the supplement to this comment:
http://www.soil-discuss.net/2/C161/2015/soild-2-C161-2015-supplement.pdf

Interactive comment on SOIL Discuss., 2, 371, 2015.