

Referee's comments are in dark blue.

General comments

This "Brief communication" presents a novel technique that enables the monitoring of sediment dynamics in remote terrains. It combines photogrammetric processing with UAV and was tested in the Illgraben debris-flow torrent, located in Switzerland. The topic is perfectly fitting with the ones proposed by NHESS and the contents are relevant for researchers and practitioners. I recommend the publication of the ms after some minor revisions.

- I suggest adding some information on recent studies applying UAV (or TLS) in torrential or fluvial areas (not related to Illgraben).

Agreed. We will provide more information about recent techniques to map and monitor sediment dynamics in torrential/fluvial areas other than Illgraben. Depending on available space, we may have to focus on UAV's and keep the discussion on TLS very short.

- The (preliminary) results, described between L125 and 131, should be extended and placed in a separate section. The results are brilliant and deserve a longer description. Not only related to the sediment dynamics, but also on basic (more technical) information like the pixel size of the DEM, which is missing.

Agreed. We will discuss the results in the following contexts:

- potential for identifying debris-flow initiation areas
- role of lateral sediment inputs for sediment dynamics in main channel
- sediment supply limitations

We will furthermore provide DEM pixel size.

If the above two points are not possible due to space problems, try to reduce other parts of introduction or discussion-conclusions.

- The description of locations like Illgraben mouth, channel outlet, upper catchment, head of the Illgraben channel, catchment outlet are not always clear. The authors may simplify them and add the most important ones in Figure 1A.

Agreed. We will annotate Figure 1 and reduce closed terminology (e.g., as appropriate, only use "head of the Illgraben channel" OR "upper catchment").

Specific comments:

L30: "DURING debris flows" is not clear. The surveys were before and after debris-flow events, weren't they?

A subtle difference but certainly correct! We will change the wording accordingly.

L73: width not with

OK.

L84-85: not totally clear, which was finally used in Illgraben (LAN or/and GSM).

We will clarify.

L89: "1-inch Complementary Metal Oxide Semiconductor sensor" only expert may understand it. Please clarify.

This is a technical specification, which we deemed of interest to photogrammetry experts. The acronym "CMOS" is more widely used, but since we do not use this term again, we assume that we have to spell it out.

L125: Figure 2 (not 1).

OK.

Figure 2: Improve the design or layout (e.g. rotate the zoom boxes and make them larger). Clearly indicate the locations of the check dams.

OK. Zoom boxes can be enlarged, but we feel that they should be oriented the same way as the overview. Check dams will be indicated in the zoom boxes.

L140: You only mention flight time, but it would also be interesting having some information on the time consumption of the photogrammetric processing.

Agreed. We will provide processing time estimates.