



EGUsphere, referee comment RC1
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Comment on egusphere-2022-156

Marcel Hürlimann (Referee)

Referee comment on "Brief communication: An autonomous UAV for catchment-wide monitoring of a debris flow torrent" by Fabian Walter et al., EGU Sphere,
<https://doi.org/10.5194/egusphere-2022-156-RC1>, 2022

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 NHES 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).
- 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.

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.

Specific comments:

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

L73: width not with

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

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

L125: Figure 2 (not 1).

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.

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