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Discussions

Interactive comment on "Method and application of using unmanned aerial vehicle for emergency investigation of single geo-hazard" *by* Haifeng Huang et al.

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Authors: Thank you for your interests about our paper and valuable comments to improve it. The responds to your comments are as follows:

GENERAL COMMENTS The paper describes a drone specifically design by the authors for emergency investigations. This UAV was been applied in 3 practical cases to demonstrate its efficacy. In my opinion, there are 3 limits in this paper:

SPECIFIC COMMENTS The paper contains no mentions of Direct Photogrammetry (DF) approach, but in a drone specifically designed for emergencies and rapid mapping, this approach has to be applied. I suggest the use of DP techniques to measure

directly in field external orientation parameters and the application of a post processing BBA to refine the external orientation parameters directly measured. Could this UAV be equipped with sensors for DF? In the case of affirmative answer, I suggest to the authors to include some details of this solution (kind of IMU/GNSS sensors, real time or post processing, used software tools, and so on);

Authors: Thank you for commenting and suggesting about the DF. Actually, although the DF is not mentioned in the paper, this approach is used, especially in the site investigation and the site fast processing. Specifically, when the GNSS signal can be used during the site investigation, the location information will be automatically wrote into the captured photos, to ensure that the use of fast SfM processing method can generate coarse-precision results with a real space coordinate system in the site fast processing step. If there is no GNSS signal, the GCPs layout and measurement is indispensable to support the SfM photogrammetric processing, i.e., introducing GCPs to ensure generate results with a real space coordinate system. So, according to the suggestion, the details of DP, including IMU/GNSS sensors, post processing, used software tools, and so on will be added to the revised paper.

Paper don't describe innovative approach to SfM survey using UAV: merely, there are some details of practical suggestions for UAV survey and some reports of applicative examples, actually known in scientific literature. To complete these descriptions, I suggest to complete the practical details including, in Paragraphs 5.1, 5.2 and 5.3, some information on number of acquired image, flight plan, time spent for the acquisition and post processing, number of points of dense point clouds, density of point cloud, obtained accuracy.

Authors: Thank you for the suggestion. These detailed information will be added in the revised paper.

The references don't include some important papers on the use of UAV for mapping, environmental application, rapid mapping and emergency investigation.

For examples, I suggest: http://link.springer.com/article/10.1007/s12518-014-0144-x http://www.mdpi.com/1424-8220/15/7/15717 http://www.mdpi.com/2072-4292/8/9/779 http://www.tandfonline.com/doi/pdf/10.1080/19475705.2016.1225229

Authors: Thank you for the suggestion. These references will be carefully read and added to the appropriate location in the revised paper.

Detailed corrections: - Rows 110, 172, 179, 183, 220, 223, 246, 290, 301, 381, 384, 396, 411, 433, 467 Replace GPS with GNSS - Row 320 Replace facade in façade

Authors: Thank you for the corrections. These comments will be reflected in the revised paper.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., doi:10.5194/nhess-2017-44, 2017.