Natural Hazards
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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 This paper aims to describe a RPAS and processing pipeline specifically developed for the management of small hazard events. Authors discuss both the platform/sensor technology and the main steps followed during the complete UAV mission workflow. Finally, performance evaluation is carried out on three test cases. Although the core concept is interesting and may represent an interesting issue for the scientific community, several main issues should be addressed by the authors.

SPECIFIC COMMENTS The English is very poor and this may prevent a full comprehension of the paper. Photogrammetry-related terminology is vague and often incorrect (e.g. "high-definition photos", "...for the photos, the definition, scope and overlap rate...", "planar digital terrain", etc...). A proofreading by a native English speaker conversant with photogrammetric terminology is strongly required.

Authors: Thank you for the comment. After modifying the contents of the paper, we will invite a native English speaker conversant with photogrammetric terminology, to help us improve the English writing of the revised paper.

The scientific significance and novelty of the paper should be proved. Which are the advantages of the developed platform/sensor/pipeline compared to other commercial or in-house developed systems? The literature review addresses only general concepts and does not show the novelty and advantages of the newly developed system.

Authors: Thank you for the comment about the scientific significance and novelty of the paper. In fact, The main aim of this paper is to conclude and establish a complete method of using UAV for emergency investigation of small hazard events. In the revised paper, we will strengthen the literature review about this aspect.

The application field is vague. Authors say that the RPAS is developed for emergency investigation of "single" geo-hazards. What do you mean with the term "single"? If it refers to a limited spatial extension of the natural hazard, this should be better clarify and a clear idea of the intended area size should be given.

Authors: Thank you very much for the comment and suggestion. Indeed, the "single" geo-hazard refers to a limited spatial extension of a natural hazard, so we will give a better clarify and a clear idea of the intended area size in the revised paper.

No accuracy figures are given. Authors generally refer to "meter-level error" or "centimeter- even millimeter- level accuracy". How did you evaluate accuracy? Did you adopt Control Points to check the accuracy of orientation results? Did you evalu-

ate the accuracy of the final product? Although accuracy is not the main aim of rapid mapping, a metric evaluation of the methodology is necessary to confirm and support the conclusions. Authors: Thank you for the comment about the accuracy. And the accuracy is indeed an important indicator of the availability of results, in our method, the GCPs were usually used for accuracy assessment, simply, the root-mean-square error (RMSE) of GCPs was often used as an important indicator. So, we will add the accuracy results in 5. three application examples.

Why is direct geo-referencing not dealt with?

Authors: In fact, the direct geo-referencing is used in our method, 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 geo-referencing results. 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 geo-referencing results. So, some detailed processing method, such as SfM and so on will be added to the revised paper.

The experimental part is very poor. No details are given regarding the image dataset (GSD?), the accuracy achieved, the time required. This gives limited support to the conclusion drawn by the authors.

Authors: Thank you for the comment. More practical details including the number of acquired image, time spent for the acquisition and post processing, number of points of dense point clouds, density of point cloud, obtained GSD and accuracy, etc., will be added in the revised paper.