Peer Review Report

Review Report on Near-time digital mapping for Geoforensic Search

Original Research, Earth Sci. Syst. Soc.

Reviewer: Andrew Hart
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EVALUATION

Q 1 **Please summarize the main findings of the study.**

The authors have combined the use of available desk study information with imagery acquired by drones while on site to provide base maps that could be updated in the field. The paper then outlines how this was used (and therefore could be used elsewhere) for Geoforensic projects.

Q 2 **Please highlight the limitations and strengths.**

Well written paper which provides lots of detail on the tools and methodologies being used. Case studies provide useful resource for others to follow the methodology described. In particular, the paper highlights the power of combining remote sensing and geomorphological mapping techniques for better understanding the shape and processes acting on a landscape (and how that can be used to identify areas of interest. The approach described has yielded some interesting results.

This Reviewer notes however, that while the technology available today is much better than it was 15-20 years ago, this approach to field mapping, especially in remote areas where base mapping (topo or geology) may not exist, is possibly not as new as the paper seems to claim. It has certainly improved over the years but the concepts presented here have been used in engineering geology, mining geology and military geology for many years now. Have the authors explored what these sectors have been doing? What lessons have they learnt from these sectors / forms of geological mapping?

Having said that, there are lessons here that those sectors could also benefit from.

Q 3 **Please comment on the methods, results and data interpretation. If there are any objective errors, or if the conclusions are not supported, you should detail your concerns.**

See above - I have combined my comments.

The paper seems to imply that a geomorphological map is the same as a Digital Terrain Model. They are not. A DTM is a digital representation of the topographic surface of an area. While it can be used to map slope morphology, it is not a geomorphological map. A geomorphological map presents the mappers interpretation of the slope morphology, identification of the materials present and the processes acting on the slope/ground in that area. It is also possible that what the authors are calling a DTM is actually a DSM (Digital Surface Model). This is the model generated from the drone data before algorithms are used to essentially 'remove' surface features such as vegetation and buildings in order to generate a more accurate picture of the terrain underneath.

Can you please highlight in the paper that drone pilots should be appropriately experienced, insured and qualified to undertake this work (e.g., have an "A2 Certificate of Competency (c of c)" of "GVC" license or equivalent). The journal should not be endorsing anything that might be seen as not being safe, unlawful or not following industry best practice.

Q 4 Check List

Is the English language of sufficient quality?
Yes.

Is the quality of the figures and tables satisfactory?
Yes.

Does the reference list cover the relevant literature adequately and in an unbiased manner?
Yes.

Are the statistical methods valid and correctly applied? (e.g. sample size, choice of test)
Not Applicable.

If relevant, are the methods sufficiently documented to allow replication studies?
Yes.

Are the data underlying the study available in either the article, supplement, or deposited in a repository? (Sequence/expression data, protein/molecule characterizations, annotations, and taxonomy data are required to be deposited in public repositories prior to publication)
Not Applicable.

Does the study adhere to ethical standards including ethics committee approval and consent procedure?
Not Applicable.

If relevant, have standard biosecurity and institutional safety procedures been adhered to?
Not Applicable.

Q 5 Please provide your detailed review report to the editor and authors (including any comments on the Q4 Check List):

Please see attached edited manuscript.

QUALITY ASSESSMENT

Q 6	Originality	
Q 7	Rigor	
Q 8	Significance to the field	
Q 9	Interest to a general audience	
Q 10	Quality of the writing	
Q 11	Overall quality of the study