

Drones and the Structure from Motion (SfM) Technique in Cadastral Surveying

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SUMMARY

Drones and the Structure from Motion (SfM) Technique in cadastral surveying

In this presentation I will describe the aspects which we consider when promoting drones and SfM as legitimate tools in cadastral surveying. I will show some examples of materials that we have produced in Albania, the Philippines and Ghana in our efforts to convince the relevant authorities to adapt their policies towards the legitimization of drones and SfM techniques.

Capacity Building Program

I will present a recommended sequence of activities in capacity and policy development to establish legitimization of drone/SfM techniques in cadastral surveying:

Identification of target participants.

I will discuss the importance of identifying and selecting the most effective local partners in the implementation process. They should be in a position of influence or executive authority and capable of scaling the initiative through effective communication and training of further trainers and trainees.

Introduction to Drone Basics:

I will discuss the need for a basic understanding of how drones work so that target professionals can make informed assessments as to the appropriateness of drones in aerial image acquisition. This aspect will include the assembly, safe operation and maintenance of

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drones.

Training in SfM mapping techniques:

Before they can commit to drone/SfM methodology, decision makers need to have a grasp of the typical work flow in an SfM mapping project. I will briefly discuss this workflow as well as the various possible SfM geo-spatial products that can be used for cadastral surveying.

Investigating Accuracy:

I will discuss the establishment and use of a local test bed which can serve as a laboratory for robust bench testing of spatial accuracy in SfM mapping as well as a public facility for certification purposes. I will explain the importance of securing the direct participation of the public and academic leadership and discuss the implications that the nature of boundaries recorded in a given system (i.e. whether general or fixed, land or strata, urban or rural) has on accuracy requirements.

Examples of SfM geo-spatial product use in cadastral surveying.

When planning a capacity building program, one should always be on the lookout for solutions that address shortcomings in different settings. As example of this I will present a method that overcomes the problem of parcel corners that are obscured from view by the aerial camera by trees or roof overhangs. I will also show how the inclusion of oblique imagery can improve strata surveying by means of SfM.

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