

Drone Imagery Acquisition to Perform Volumetric Analysis for Landscape Mapping¹

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Abstract: This poster presentation focuses on the use of drone imagery for mapping and modeling the volume of disturbed land features. We demonstrate the use of imagery collected at two sites: a forest biomass site and a mine overburden site. The drone we used for our analysis was a simple DJI Phantom 3 drone mounted with a SLR camera system. The flight planning included both north-south and east-west path lines to assure 80% over and endlap of ground features. An RTK global positioning system was integrated into the flight planning to capture targets from the drone and use in creating an image orthophoto. Software included a combination of Agisoft, Pix4D, and FUSION. We were able to create volumetric estimates accurate to within 8% of a more traditional terrestrial laser system also used at the sites. Along with the methodology the poster will highlight the utility of the approach to demonstrate how to capture large footprint features at a fraction of the time and cost from traditional sampling. In addition, the planning and effectiveness of this approach will be discussed for helping future considerations in using this technology.

Additional Key Words: 3D modeling, Processing, Othophotos, Biomass, Overburden

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