Using Photogrammetry and Lidar data for landslide risk analysis

Abstract

Between twenty-five and fifty people die each year in the US alone from landslides, which is partly due to the lack of detailed landslide risk analysis. Traditionally land surveying has been a time-consuming and expensive process which requires a team of qualified individuals and expensive equipment. LIDAR (light detection and ranging) is a powerful tool in the field of Geomorphology and advancements in drone technology have brought it to the hands of everyday people. Newer drones such as the _____ along with automation software such as 'Drone deploy' enable land surveying for a fraction of the cost and with a smaller team. In this Capstone we will be looking at the accuracy and feasibility of using drone assisted LIDAR and photogrammetry for landslide risk analysis. LIDAR is not only used to create 3D models of an area but can also penetrate heavily forested/obstructed areas to create digital elevation models of the land surface. The contour lines in this model in conjunction with bedrock data are used to create an isopleth map that shows areas prone to landslides. Photogrammetry can be used in addition to LIDAR to help better visualize the surface and to better identify higher landslide risk areas. Our finds show that _____. By simplifying this process drone assisted LIDAR mapping can greatly benefit civil engineering projects and save many lives by making it easier to identify earthquake prone areas.

Sources:

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