SUITABILITY OF STATIC POSITIONING FOR GCP DETERMINATION FOR PRECISE MAPPING USING UNMANNED AERIAL SYSTEM (UAS)

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INTRODUCTION

Mapping can be intense and laborious with the current method in terms of the work environment, number of workers required, cost, time, and obviously, the equipment used for the work. It is not convincing fast enough to catch up with the revolution of the world. However aerial photogrammetry had been introduced to improve the mapping method in terms of accuracy, work done and speed.

Unmanned Aerial System (UAS) is the latest realization of aerial photogrammetry to the mapping world. This technique is capable of mapping large area in short time with less work and effort, while the accuracy is also maintained. This paper highlights the capability of UAS to replace the conventional technique of mapping. To test the accuracy of this product, the technique used in determining the ground control point (GCP) is restudy.

The accuracy of GCP plays big impact in the accuracy of the map produced, due to its role in establishing the control for the map. In this study, the conventional technique in determining the GCP is hereby replaced with better technique to get better accuracy. The technique involved is GPS data observation which is observed with static network format which is never been used before in UAS. This paper, presents a new procedure using UAS for precise mapping and this method is expected to replace the conventional technique of topographic mapping.

MAIN RESULTS

Table 1. Comparison of check point coordinate from Orthophoto map and GPS observation

POINT	GPS COORDINATE		STATIC NETWORK GCP	
G11	1°33'29.6437"	103°38'13.3195"	1°33'29.6474"	103°38'13.3128"
FHGT	1°33'38.6505"	103°38'07.1673"	1°33'38.6590"	103°38'07.1699"
SUB	1°33'30.0486"	103°38'24.4373"	1°33'30.0498"	103°38'24.4364"
P19	1°33'35.3718"	103°38'28.5431"	1°33'35.5010"	103°38'28.7286"
IBNU	1°33'43.2386"	103°38'27.0739"	1°33'43.2444"	103°38'27.0641"

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