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ACCURACY VERIFICATION OF GPS-INS METHOD IN INDONESIA

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Abstract. Pasco Corporation (Japan) has been implementing a project in Indonesia for Sumatra Island which is named Data Acquisition and Production on the National Geo-Spatial Data Infrastructure (NSDI) Development. Digital aerial images in 25 cm GSD for 1:10,000 scale mapping have been taken as a part of the project. The owner of the project, The National Coordinating Agency for Surveys and Mapping (Bakosurtanal) planned to apply conventional aerial triangulation method as the initial stage. Pasco recommended Direct Geo-Reference Methodology by using GPS-IMU measurements and carried out a verification work in a city area. Measurements of tie points were implemented by using KLT/ATLAS software manually and adjusted by BINGO software. Aerial triangulation accuracy verifications were done by using one height control in the block center, one GCP in the center and four GCPs at the corners and one in the center. The results are sequentially, rms X,Y = 0.410 cm, rms Z = 0.394 cm (one height control point), rms X,Y = 0.430 cm, rms Z = 0.392 cm (one GCP) and rms X,Y = 0.356 cm, rms Z = 0.395 cm (5 GCPs). 5 GCPs for each block in official applications have been preferred for safety reasons. Comparisons of direct geo-referencing results with geodetic check points and aerial triangulation block adjustments have been done. The details of the work have been given in this study.

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