

**PEMBUATAN PETA ORTOFOTO MENGGUNAKAN WAHANA PESAWAT TANPA AWAK SKYHUNTER AERO 1800 DAN SENSOR KAMERA SONY  $\alpha$  6000 (STUDI DESA WUKIRSARI KECAMATAN IMOGIRI KABUPATEN BANTUL)**

Oleh:

Mochamad Afrizal Mustofa

15/384592/SV/08949

**INTISARI**

Kemajuan teknologi terus berkembang cepat dan semakin memudahkan manusia untuk mendapatkan informasi secara cepat dan terpercaya, salah satunya adalah dalam bidang pemetaan dan akuisisi data. Salah satu teknologi yang digunakan untuk pengambilan data spasial adalah menggunakan pesawat tanpa awak atau UAV (*Unmanned Aerial Vehicle*). Penelitian ini bertujuan untuk mengetahui proses pembuatan peta ortofoto serta mengetahui akurasi horizontal dan vertikal peta ortofoto hasil foto udara menggunakan wahana UAV *skyhunter aero 1800* dan sensor kamera *sony  $\alpha$  6000*.

Kegiatan akuisisi data foto udara menggunakan metode eksperimental, dilakukan di daerah studi Desa Wukirsari Kecamatan Imogiri Kabupaten Bantul Daerah Istimewa Yogyakarta. Kegiatan pemetaan meliputi proses akuisisi data foto udara menggunakan UAV, pengukuran *Ground Control Point* (GCP) sebanyak 9 titik, pengukuran *Independent Control Point* (ICP) sebanyak 13 titik, foto udara kemudian diolah secara otomatis dengan metode *structure from motion* (*SfM*) menggunakan perangkat lunak *Agisoft Photoscan*. Hasil pengolahan foto udara akan menghasilkan ortofoto. Untuk mengetahui nilai ketelitian horizontal dan vertikalnya, hasil pengolahan foto udara dibandingkan nilai koordinatnya dengan nilai koordinat ICP sebanyak 13 titik ICP.

Berdasarkan hasil yang didapatkan dari pengolahan data foto udara dengan *software Agisoft Photoscan* menghasilkan 488 foto dan luas cakupan area pemotretan 8,46 km<sup>2</sup>, diperoleh nilai resolusi spasial yaitu sebesar 7.83cm/piksel, dan nilai ketelitian peta pada skala 1:10.000 peta ini memiliki ketelitian horizontal *Circular Error CE90* sebesar 1.65 (kelas 1) dan ketelitian vertikal *Linear Error LE90* sebesar 2,93 (kelas 2).

Kata kunci: UAV (*Unmanned Aerial Vehicle*), Foto udara dan Peta ortofoto.

*MAP MAKING ORTOFOTO USING AIRCRAFT (UAV) UNMANNED AERIAL  
VEHICLE SKYHUNTER AERO 1800 AND SENSOR CAMERA SONY  $\alpha$  6000  
(STUDY WUKIRSARI VILLAGE OF IMOIRI SUB-DISTRICT OF BANTUL  
REGENCY)*

*By:*

Mochamad Afrizal Mustofa

15/384592/SV/08949

**ABSTRACT**

*Advances in technology continues to evolve rapidly and more easier for people to get information quickly and reliably, one of them which is mapping and data acquisition. One of the technologies used for the retrieval of spatial data is using the aircraft without crew or UAV (Unmanned Aerial Vehicle). This research aims to knowing the process of orthophoto map making and its horizontal and vertical accuracy results of aerial photographs using a vehicle UAV aero skyhunter 1800 and a sony camera sensor 6000.*

*Aerial image data acquisition using experimental methods, carried out in the area of study of the village of Wukirsari Imogiri sub-district of Bantul Regency Yogyakarta. Mapping activities is including aerial data acquisition process using the UAV, measurement of Ground Control points (GCP) 9 points in total, measurement of Independent Control Point (ICP) 13 points in total, and processed aerial photographs and then processed with structure from motion (SfM) method using Agisoft Photoscan software. The results of processing aerial photography will produce ortofoto. To find out the value of precision horizontal and its vertical bar, the result of processed aerial photography than its own coordinate values with the value of the coordinates of the ICP by 13 points of ICP in total.*

*Based on the results obtained from aerial photography data processing with software Agisoft Photoscan, thus generate from 488 photos and extensive shoot at coverage area of 8.46 km<sup>2</sup>, and earned value spatial i.e. resolution of 7.83 cm/pixel. The accuracy of the map on a scale of 1:10,000 for horizontal value of Circular Error (CE90) is 1.65 in class 1 and vertical accuracy of Linear Error (LE90) is 2.93 in class 2.*

*Keywords: UAV (Unmanned Aerial Vehicle), aerial photographs and ortophoto maps.*