Remote Sensing Capability – Photogrammetry – Pilot in Command

PILOT IN COMMAND

Flight Profile:

- Pilot in command, taking images manually using dedicated transmitter switch
- 50ft to 400ft above ground
- Single Camera operating in Vis, IR (450 to 950) or Vis + IR or:
- Twin camera operating VIS and IR (aircraft equipped with twin camera system)
- .JPG and RAW available (RAW can only shoot 3 images in burst)

	.jpg	RAW	Ortho / Georef Method	GPS Source	Pixel res	GPS Res	Prep Time	Post Flight Time	Limit
Single Image 400ft	✓	✓	None	None	0.5cm	n/a		!	
			Ortho – None Geo – GM/ARC	GPS Cam EXIF / Aircraft Logfile	0.5cm	~50m		!!	Poor GPS data
			Ortho - Photoshop/GM Geo – GM/ARC	Ground Control 4 points per image	0.5cm	Best ~1cm Worst ~10m	!!	!!	Prep time
			Ortho - Photoshop/GM Geo – GM/ARC	Ground Control 20 points per image	0.5cm	Best ~1cm Worst ~2m	!!!	!!	Prep time
			Ortho-GM Geo-GM	UKPerpective / Bluesky Aerial/ OS/ ground truth polygons / GCP		Best ~10cm Worst ~1m			
Single Image 200ft	✓	✓	None	None	0.25cm	n/a		!	
			Ortho – None Geo – GM/ARC	GPS Cam EXIF / Aircraft Logfile	0.25cm	~30m		!!	Poor GPS data
			Ortho - Photoshop/GM Geo – GM/ARC	Ground Control 4 points per image	0.25cm	Best ~1cm Worst 10m	!!	!!	Prep time
			Ortho - Photoshop/GM Geo – GM/ARC	Ground Control 20 points per image	0.25cm	Best ~1cm Worst ~50cm	!!!	!!	Prep time
			Ortho-GM Geo-GM/ARC	UKPerpective / Bluesky Aerial/ OS/ ground truth polygons / GCP	0.25cm	Best ~10cm Worst ~2.5m			
Single Image 100ft	✓	✓	None	None	0.125cm	n/a		!	
			Ortho – None Geo – GM/ARC	GPS Cam EXIF / Aircraft Logfile	0.125cm	~20m		!!	Poor GPS data
			Ortho - Photoshop/GM Geo – GM/ARC	Ground Control 4 points per image	0.125cm	Best ~1cm Worst ~5m	!!	!!	Prep time
			Ortho - Photoshop/GM Geo – GM/ARC	Ground Control 20 points per image	0.125cm	Best ~1cm Worst ~50cm	!!!	!!	Prep time
			Ortho-Photoshop/GM Geo-GM Multilayer	UKPerpective / Bluesky Aerial/ OS/ ground truth polygons / GCP	0.125	Best ~10cm Worst ~2.5m	(!! for polygons/ gcp)	!!!	Time to GM multilayer

Remote Sensing Capability – Photogrammetry – Autopilot in Command

AUTOPILOT IN COMMAND

Typical Flight Profile:

- Autopilot has command of aircraft, navigation and waypoints
- Approx 70 x 12mp high quality images taken at specific locations by autopilot
- 200ft to 400ft above ground - 15 minute programmed flight
- Single Camera operating in Vis, IR (450 to 950) or Vis + IR or:
- Twin camera operating VIS and IR (aircraft equipped with twin camera system)
- Max 70Ha site per flight
- Overlap 50% fwd, 50% side
- .JPG and RAW available at 400ft (RAW not available at 200ft)

	.jpg	RAW	Ortho / Georef Method	GPS Source	Pixel Res	GPS Res	Prep Time	Post Flight Time	Limit
Single Image 400ft	✓	✓	None	None	0.5cm	n/a		!	
			Ortho – None Geo – GM/ARC	GPS Cam EXIF / Aircraft Logfile	0.5cm	~50m		!!	Poor GPS info
			Ortho - Photoshop/GM Geo – GM/ARC	Ground Control 4 points per image	0.5cm	Best ~1cm Worst ~10m	!!	!!	Prep Time
			Ortho - Photoshop/GM Geo – GM/ARC	Ground Control 20 points per image	0.5cm	Best ~1cm Worst ~2m	!!!	!!	Prep Time
Mosaic 400ft	✓	✓	Mosaic – MICE Geo - None	n/a	0.5cm	n/a		!	Path of Least destruction. 150mb files.
			Ortho-Photoscan Geo-none	n/a	1cm	n/a		!!	Photoscan Filesize
			Ortho-Photoscan Geo-Photoscan	EXIF / Aircraft Logfile Data	1cm	~30m		!!!	Poor GPS info
			Ortho-Photoscan Geo-GM/ARC	Ground Control 4 points per image	5cm	Best ~5cm Worst 10m	!!!!!	!!!!	Prep and GM/Arc filesize
			Ortho-Photoscan Geo-GM/ARC	Ground Control 20 points per image	5cm	Best ~5cm Worst ~1m	!!!!!!!!!! !!	!!!!!!	Massive Prep Time and GM/Arc filesize
			Ortho-Photoscan Geo-GM/ARC	UKPerpective / Bluesky Aerial/OS	5cm	Best ~1.5m Worst ~2.5m		!!!	GM/Arc filesize
			Ortho-Photoscan Geo- GM mutilayer	UKPerpective / Bluesky Aerial/ OS/ ground truth polygons / GCP	2cm	Best ~1.5m Worst ~2.5m	(!!! for polygons/ GCP)	!!!!!	Time to GM multilayer
Mosaic 200ft	✓	x		Similar to above, except that a 200feet flight will give twice the resolution, but return almost twice the number of images to process. RAW not available.					

Green denotes the generic flight profile and processing method.
GM=Global Mapper,
ARC= ESRI ARCVIEW/MAPINFO/GIS
MICE=Microsoft ICE
! = difficulty scale