The Use of GNSS Geodetic Receiver in Orthorectification of IKONOS II Satellite Images (5490)

The article aims to demonstrate the use of a GNSS geodetic receiver for orthorectification of a stereo pair of IKONOS II satellite images.

Steps that were developed in the project:

➡ Generation of a shapefile "GPS Points" in ~~the~~ ArcGIS software, aimed at defining the location of points to be tracked.

➡ Thus, for each region, three points were determined so the field to be tracked could be easily accessible. To facilitate the location in the field, they were transferred to a GPS navigation device through the software TrackMaker.

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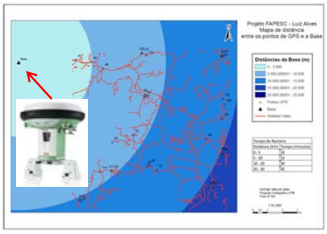
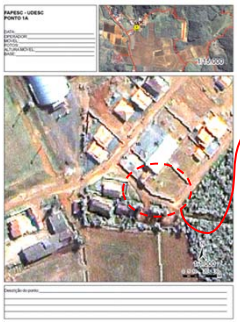


Through a process called "buffer" we could set the distance and time tracking for each tracked point, in relation to our base station, located and installed in the Colinas Hotel in the city of Luiz Alves.



Also, we designed a notebook with detailed location maps of each point being tracked. This was used as a tool which contained the description of the field.

The tracking of the points was done with a Leica Geodetic GNSS receiver. This equipment is dual frequency (L1/L2). The measurement was made on the carrier phase, differential or relative positioning. The survey method used was static.

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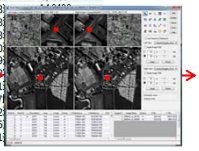
Point ID	Type of solution	East (UTM)	North (UTM)	Hgt, Elipsoidal
1A	Phase: fix all	709846,7255	7033265,1988	19,6342
2A	Phase: fix all	718831,6687	7034180,5609	8,7089
3B	Phase: fix all	714561,7944	7035679,663	
4C	Phase: fix all	709579,1644	7042828,138	
5B	Phase: fix all	719397,8528	7042816,598	
6A	Phase: fix all	714218,8060	7040304,660	
7A	Phase: fix all	713509,3996	7037679,839	
8A	Phase: fix all	712077,2736	7037182,599	
9B	Phase: fix all	719450,2436	7036465,761	
10A	Phase: fix all	719434,3409	7038796,117	
12A	Phase: fix all	714274,4707	7043057,732	
Hotel	Phase: fix all	705594,4830	7042590,845	
Hotel	Phase: fix all	705594,4805	7042590,851	



The next step was the post-processing of the points in the laboratory. For this purpose it was used the LGO software (Leica Geo Office Combined). The outcome of this process was the generation of data in a coordinate system in UTM projection, horizontal datum SIRGAS2000. These coordinates were transferred to a Microsoft Excel spreadsheet, which was converted into a shapefile used as control points in the software ERDAS/ LPS, with the purpose of orthorectification of a stereoscopic pair of IKONOS II images.

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Thank you…..

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