

Processing Report

Project name: Madrid2025_Left-Right

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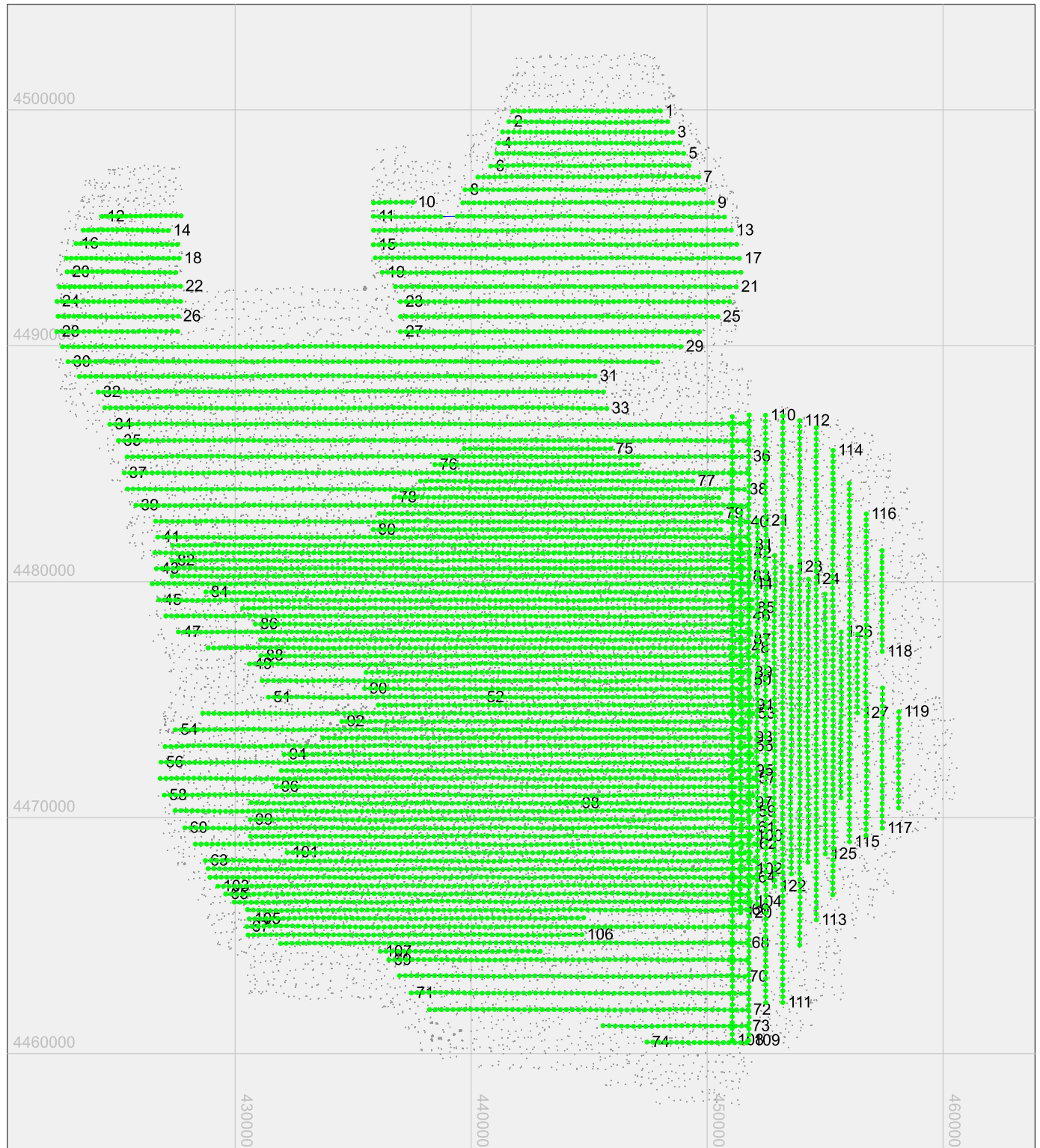
Ground control points

Ground control point statistics

General project information

Project name	Madrid2025_Left-Right
Process	Geo-referencing
Computer node	RESTITUCION-1
Operating system	Microsoft Windows 10 Professional (build 26200), 64-bit, version 10.0
Machine	12th Gen Intel(R) Core(TM) i700K, 20 cores, 63.7 GByte RAM
Program version	13.2.0.10038
User name	Restitucion-1
Source time (*.sta)	Tue May 19 15:14:09 2026
Report time (*.pdf)	Wed May 20 06:59:15 2026
Project file	G:/Vuelos/Madrid_2025/Aero_Left-Right/Madrid2025_LR.prj
Statistic file	G:/Vuelos/Madrid_2025/Aero_Left-Right/Madrid2025_LR.sta
Active block	Complete
Number of used images	17527 of 17528
Number of used cameras	2 of 2
Number of strips	127
Flying height	min=2449.4 / avg=2521.2 / max=2594.9 [m]
Terrain height	min=505.8 / avg=661.6 / max=1022.9 [m]
Average photo scale	1 : 15166
Coordinate system	PROJCS["UTM Zone 30 N", GEOGCS["ETRS89",DATUM["European Terrestrial Reference System 1989", SPHEROID["GRS 1980",6378137, 298.2572221011,AUTHORITY["EPSG","7019"]], TOWGS84[0,0,0,0,0,0,0], AUTHORITY["EPSG","6258"]], PRIMEM["Greenwich",0,AUTHORITY["EPSG", "8901"]], UNIT["Degree",0.01745329251994, AUTHORITY["EPSG","9102"]], AXIS["Long",EAST], AXIS["Lat",NORTH], AUTHORITY["EPSG","4258"]], PROJECTION["Transverse_Mercator"], PARAMETER["False_Easting",500000], PARAMETER["False_Northing",0], PARAMETER["Latitude_Of_Origin",0], PARAMETER["Central_Meridian",-3], PARAMETER["Scale_Factor",0.9996], UNIT["Meter",1,AUTHORITY["EPSG","9001"]], AXIS["East",EAST], AXIS["North",NORTH], AUTHORITY["EPSG","25830"]]

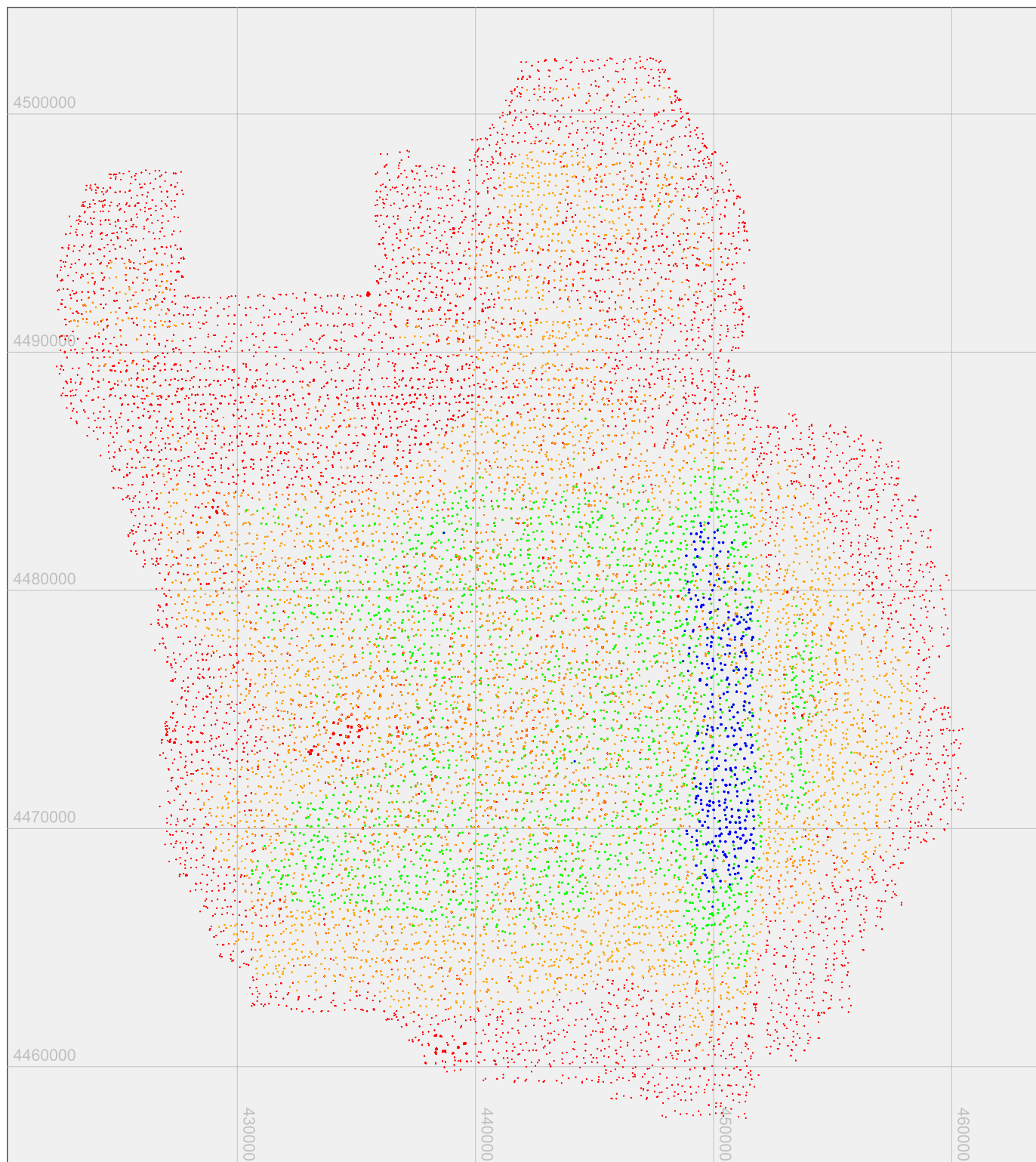
Flight overview



Graphic with 127 strip definitions for the aerial triangulation. The area has a planimetric extent of about: 42305 x 48706 [m].

- : Camera location for 17527 adjusted photos.
- : Camera location for 1 eliminated photos.
- : Defined strip in the project.
- : Tie point location for 213790 points.

Tie point distribution



Tie point distribution of 213790 points in the statistic file. The point size and colour reflects the number of images containing the point. The area has a planimetric extent of about: 42305 x 48706 [m] and a height range of about: 506 - 1023 [m].

- : Point found in (0-12) images.
- : Point found in (13-24) images.
- : Point found in (25-36) images.
- : Point found in (>36) images.

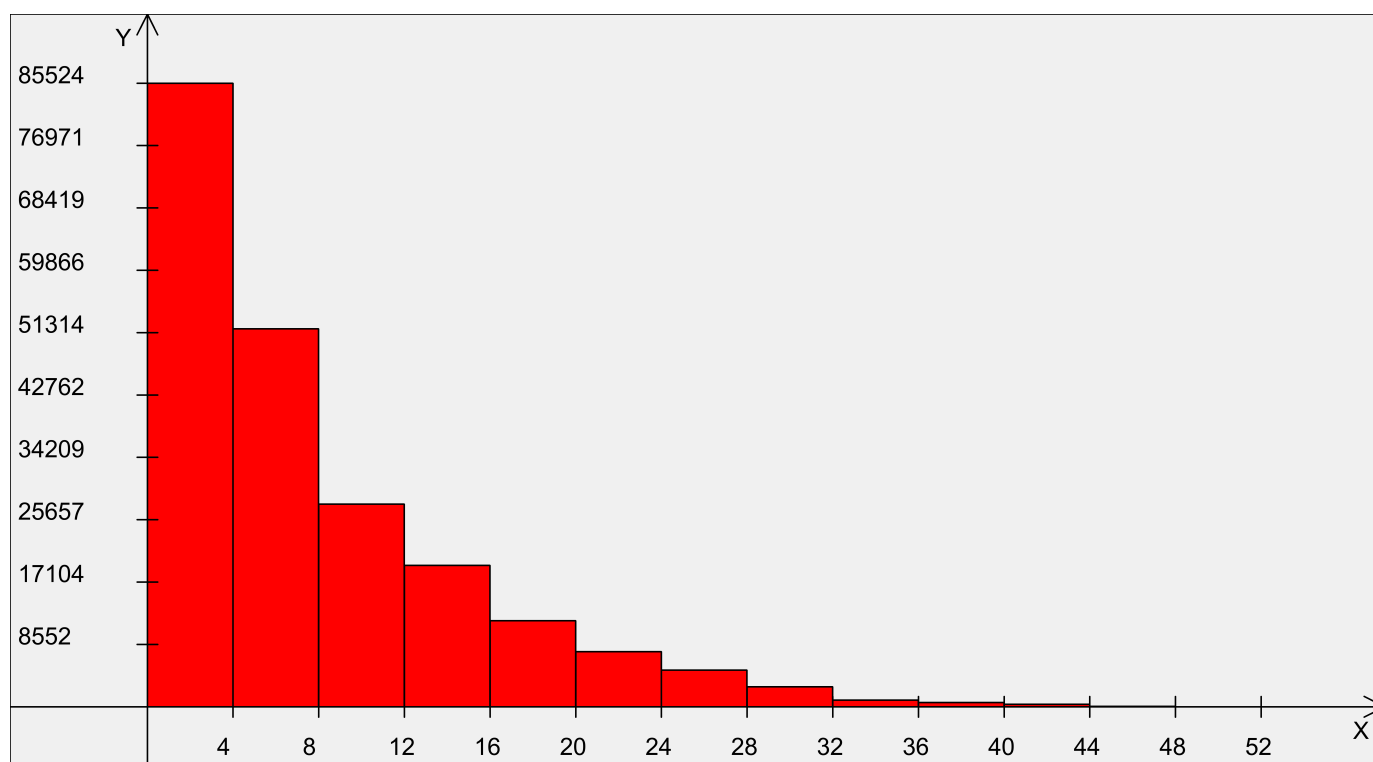
Image points

Frequency of image point observations in the photos

X	Number of image points (Y)	%
>0 - 4	85524	40.00
>4 - 8	51861	24.26
>8 - 12	27826	13.02
>12 - 16	19403	9.08
>16 - 20	11824	5.53
>20 - 24	7569	3.54
>24 - 28	5047	2.36
>28 - 32	2753	1.29
>32 - 36	945	0.44
>36 - 40	601	0.28
>40 - 44	362	0.17
>44 - 48	71	0.03
>48 - 52	4	0.00

Appearance of 213790 image points from the statistic file. The table contains all image observations of the points.

Histogram for image point frequency in the photos



Graphic for 17527 photos and 213790 image points. Number of image points (Y) within a given range for number of photos (X).

Camera 0

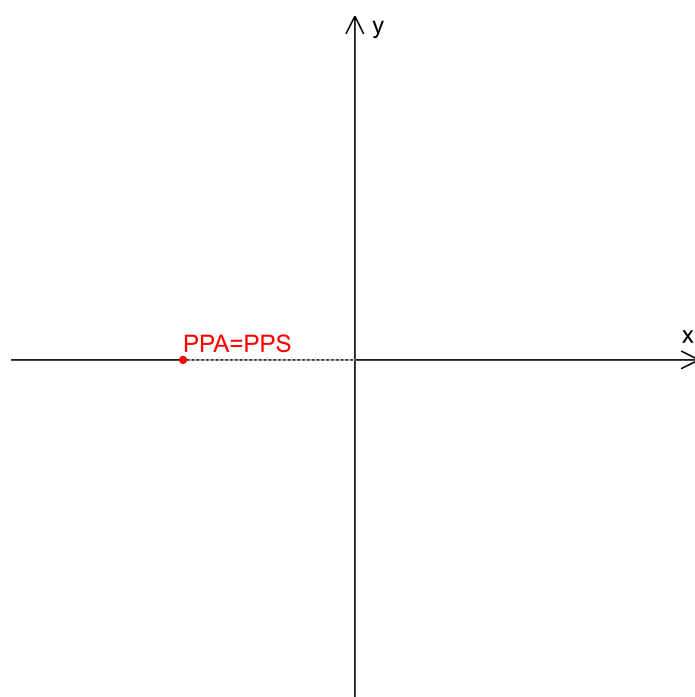
Camera data (Custom_right)

Data source	Madrid2025_LR.sta		
Sensor type	CCD sensor		
Manufacturer	Vexcel		
Model	Osprey		
Serial number	not defined		
Camera UUID	not defined		
Sensor (width / height) [pixel]	14144	10560	
Pixel size (x / y) [micron]	3.7600	3.7600	
Ground sampling distance (x / y) [m]	0.0570	0.0570	
Calibration process	OFF		
Calibration status	Initial		
Calibration direction	INPHO (from ideal to measured)		
Distortion type	Undefined		
Additional parameters	OFF		
Focal length [mm / pixel]	123.3800	32813.8298	
Focal length (Fx / Fy) [pixel]	32813.8298	32813.8298	
Principal point (x / y) [mm pixel]	-6.6800 5294.9043	0.0000 5279.5000	

Platform data (Custom_right)

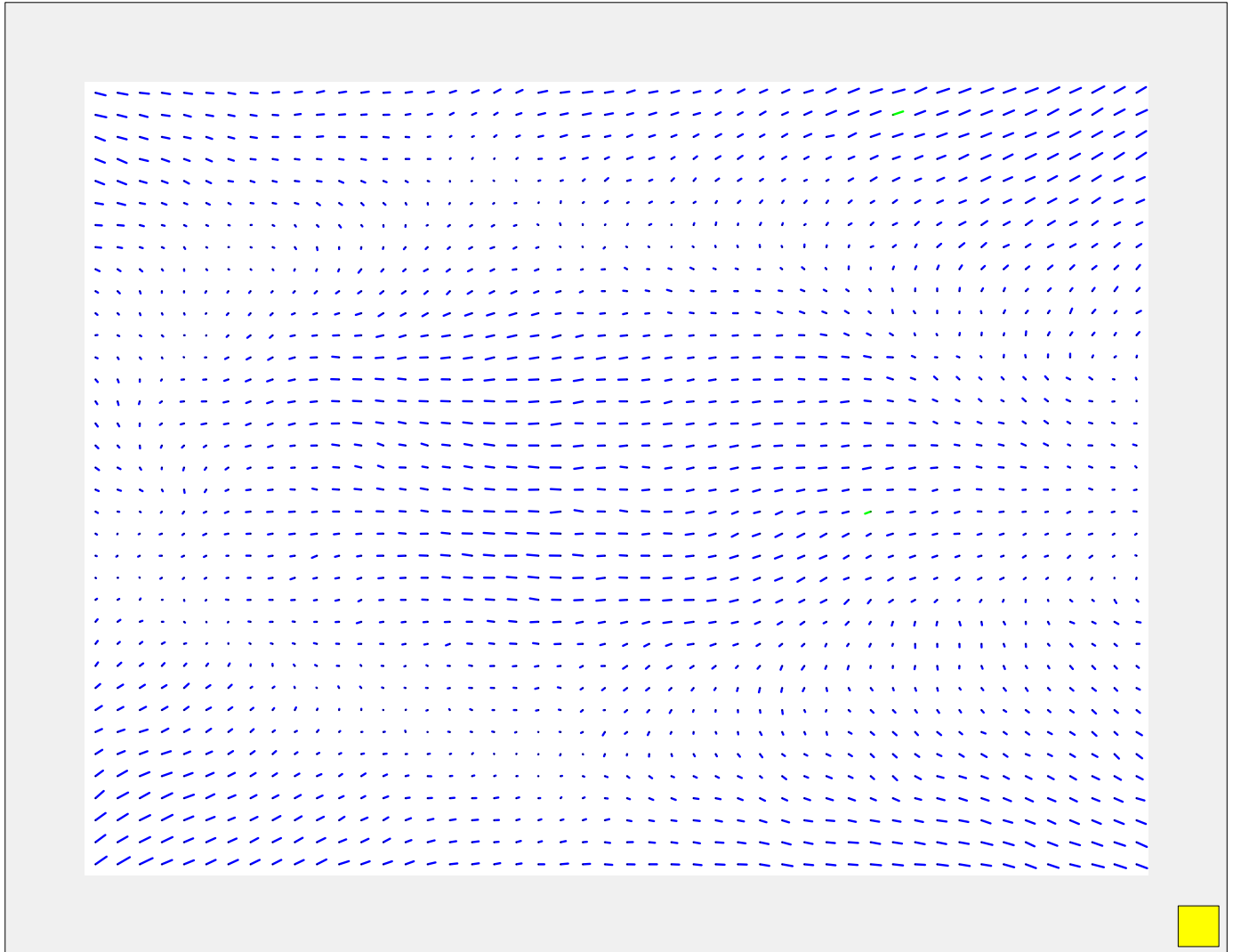
	X [m]	Y [m]	Z [m]
GNSS antenna offset	---	---	---
	Omega (X) [deg]	Phi (Y) [deg]	Kappa (Z) [deg]
IMU boresight alignment	---	---	---
Camera mount rotation	---		

Camera data (Custom_right)



Principle point ($x=-6.6800$, $y=0.0000$ [mm]) in the image.

Image residuals (Custom_right)



Graphic of 911372 back-projected adjusted points from the statistic file. Average image residual matrix vectors (min=0.008, avg=0.131, max=0.350 [pixel]) for image matrix elements. An image matrix element is defined with about (300 x 300) pixels. Image residual is defined as: residual = observed - adjusted. Number of invalid image residual vectors outside the graphic: 0.

-  : Scale for the residual vectors. Symbol in the graphic is correlated to 1 [pixel] in the image.
-  : Average image residual vector for points in (0-2) images.
-  : Average image residual vector for points in (3-4) images.
-  : Average image residual vector for points in (5-10) images.
-  : Average image residual vector for points in (>10) images.

Exterior orientation evaluation (Custom_right)

ImageID	# of points	Distribution	RMS Ds [pixel]	Max Ds [pixel]	Remark
h50_0534_fot_123-17205_R	36	5 of 9	0.38	0.62	
h50_0582_fot_182-11779_R	54	5 of 9	0.38	0.72	
h50_0559_fot_506-20763_R	66	5 of 9	0.38	0.72	
h50_0559_fot_319-22498_R	46	5 of 9	0.36	0.67	
h50_0559_fot_315-22259_R	52	5 of 9	0.36	0.68	
h50_0582_fot_184-11494_R	41	5 of 9	0.36	0.67	
h50_0559_fot_320-22597_R	116	5 of 9	0.36	0.69	
h50_0559_fot_159-19019_R	76	5 of 9	0.36	0.73	
h50_0582_fot_184-11491_R	27	4 of 9	0.36	0.62	
h50_0559_fot_329-10566_R	42	5 of 9	0.36	0.65	
h50_0582_fot_184-11490_R	31	5 of 9	0.36	0.73	
h50_0582_fot_184-11493_R	33	4 of 9	0.36	0.62	
h50_0559_fot_319-22523_R	49	4 of 9	0.35	0.66	
h50_0559_fot_504-20656_R	48	5 of 9	0.35	0.68	
h50_0559_fot_307-21507_R	80	5 of 9	0.35	0.63	
h50_0582_fot_180-12028_R	39	5 of 9	0.35	0.65	
h50_0559_fot_329-10544_R	41	5 of 9	0.35	0.66	
h50_0559_fot_405-14098_R	95	5 of 9	0.35	0.67	
h50_0534_fot_302-21206_R	63	4 of 9	0.35	0.65	
h50_0559_fot_319-22542_R	46	5 of 9	0.35	0.63	
h50_0559_fot_321-22652_R	67	5 of 9	0.35	0.63	
h50_0559_fot_327-10739_R	51	5 of 9	0.35	0.68	
h50_0582_fot_184-11502_R	23	3 of 9	0.35	0.66	
h50_0559_fot_305-21330_R	66	5 of 9	0.35	0.74	
h50_0582_fot_182-11770_R	46	5 of 9	0.35	0.61	
h50_0582_fot_184-11509_R	46	5 of 9	0.34	0.62	
h50_0559_fot_319-22517_R	48	4 of 9	0.34	0.67	
h50_0559_fot_309-21729_R	53	4 of 9	0.34	0.72	
h50_0559_fot_404-13915_R	80	5 of 9	0.34	0.69	
h50_0559_fot_325-10925_R	59	5 of 9	0.34	0.65	
h50_0559_fot_313-22041_R	50	5 of 9	0.34	0.67	
h50_0559_fot_405-14103_R	102	5 of 9	0.34	0.72	
h50_0582_fot_182-11801_R	45	5 of 9	0.34	0.67	
h50_0559_fot_306-21417_R	66	5 of 9	0.34	0.69	
h50_0582_fot_180-12026_R	44	5 of 9	0.34	0.72	
h50_0533_fot_143-23690_R	51	5 of 9	0.34	0.65	
514 more photo(s)	---	---	---	---	

Statistic of 911372 back-projected adjusted points from the statistic file. The table list 36 of 550 photos with an EO beyond the thresholds. The project consist of 8764 of 17528 photos from this camera. The table contain differences between the matched image points and back-projected adjusted points. Photos with at least one of the following conditions are visible:

- * **# of points** : Number of points/photo < 30 [points]
- * **Distribution** : Number of image tiles with more than 3 points < 6 [image tiles]
- * **RMS Ds [pixel]** : RMS difference in pixel > 0.7 [pixel]

Camera 1

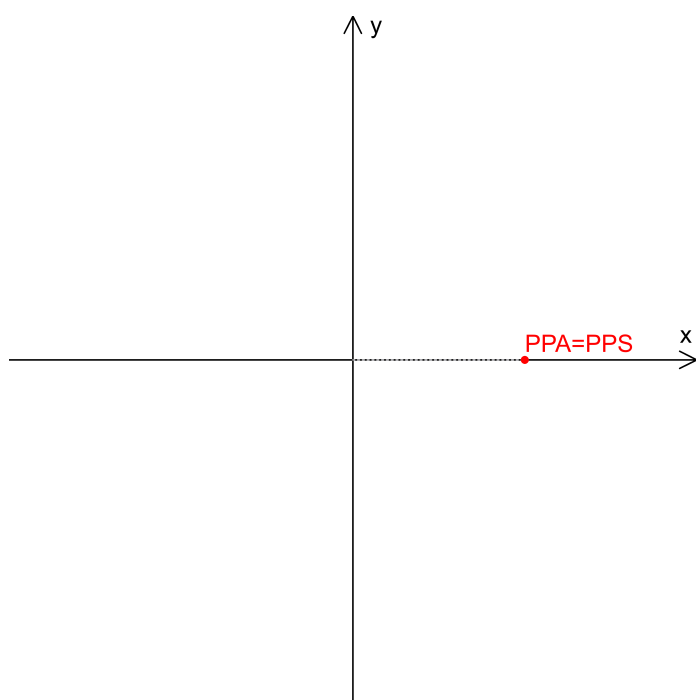
Camera data (Custom_left)

Data source	Madrid2025_LR.sta		
Sensor type	CCD sensor		
Manufacturer	Vexcel		
Model	Osprey		
Serial number	not defined		
Camera UUID	not defined		
Sensor (width / height) [pixel]	14144	10560	
Pixel size (x / y) [micron]	3.7600	3.7600	
Ground sampling distance (x / y) [m]	0.0570	0.0570	
Calibration process	OFF		
Calibration status	Initial		
Calibration direction	INPHO (from ideal to measured)		
Distortion type	Undefined		
Additional parameters	OFF		
Focal length [mm / pixel]	123.3800	32813.8298	
Focal length (Fx / Fy) [pixel]	32813.8298	32813.8298	
Principal point (x / y) [mm pixel]	6.6800 8848.0957	0.0000 5279.5000	

Platform data (Custom_left)

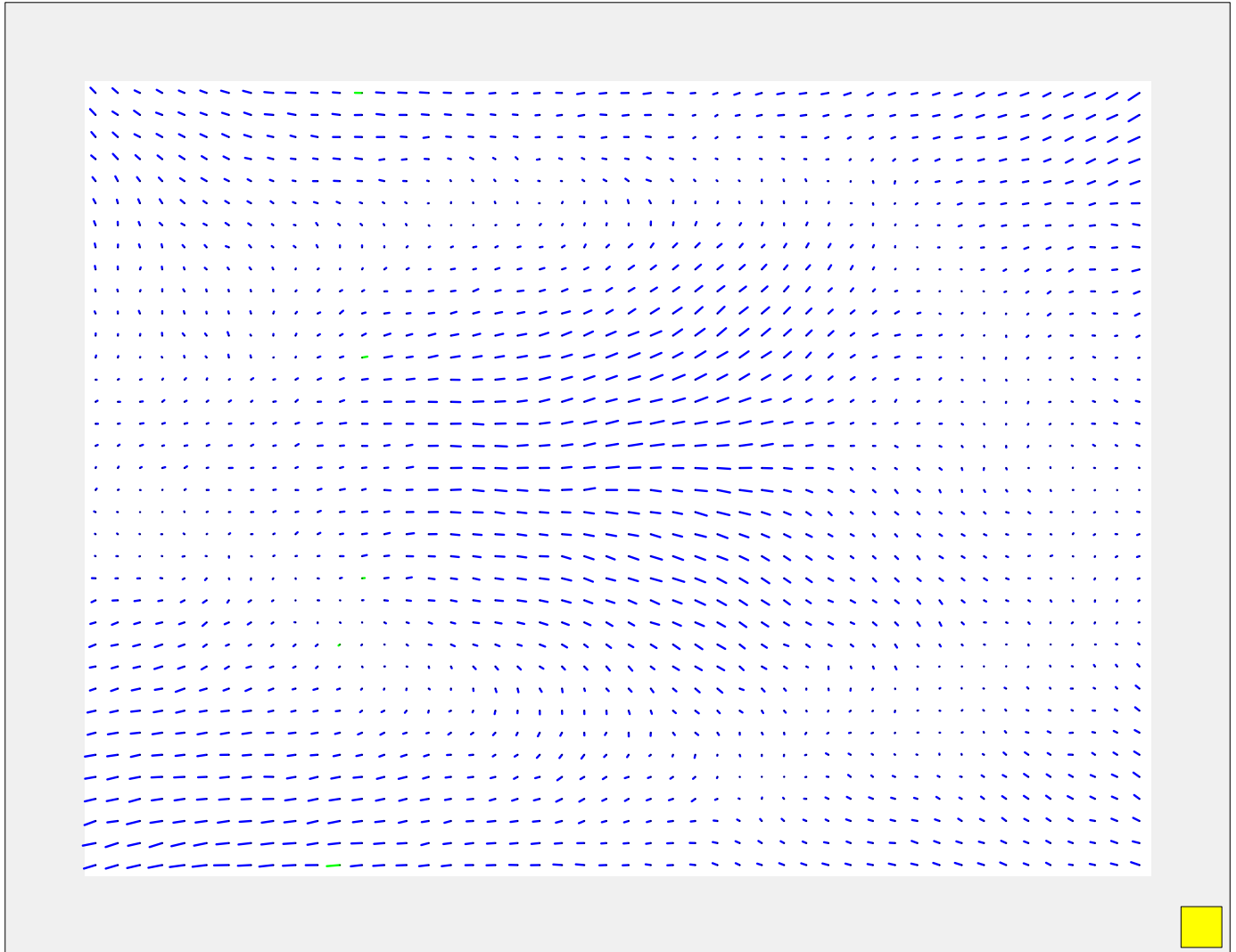
	X [m]	Y [m]	Z [m]
GNSS antenna offset	---	---	---
	Omega (X) [deg]	Phi (Y) [deg]	Kappa (Z) [deg]
IMU boresight alignment	---	---	---
Camera mount rotation	---		

Camera data (Custom_left)



Principle point ($x=6.6800$, $y=0.0000$ [mm]) in the image.

Image residuals (Custom_left)



Graphic of 909169 back-projected adjusted points from the statistic file. Average image residual matrix vectors (min=0.002, avg=0.124, max=0.363 [pixel]) for image matrix elements. An image matrix element is defined with about (300 x 300) pixels. Image residual is defined as: residual = observed - adjusted. Number of invalid image residual vectors outside the graphic: 0.

-  : Scale for the residual vectors. Symbol in the graphic is correlated to 1 [pixel] in the image.
-  : Average image residual vector for points in (0-2) images.
-  : Average image residual vector for points in (3-4) images.
-  : Average image residual vector for points in (5-10) images.
-  : Average image residual vector for points in (>10) images.

Exterior orientation evaluation (Custom_left)

ImageID	# of points	Distribution	RMS Ds [pixel]	Max Ds [pixel]	Remark
h50_0534_fot_137-21020_L	36	5 of 9	0.43	2.06	
h50_0559_fot_320-22595_L	39	5 of 9	0.38	0.69	
h50_0559_fot_318-22433_L	47	5 of 9	0.37	0.73	
h50_0559_fot_328-10657_L	56	5 of 9	0.37	0.71	
h50_0559_fot_308-21601_L	38	3 of 9	0.37	0.71	
h50_0559_fot_320-22594_L	46	5 of 9	0.36	0.67	
h50_0559_fot_326-10837_L	75	5 of 9	0.36	0.69	
h50_0559_fot_316-22308_L	37	5 of 9	0.36	0.71	
h50_0559_fot_326-10857_L	47	4 of 9	0.36	0.65	
h50_0559_fot_501-20476_L	48	4 of 9	0.36	0.63	
h50_0559_fot_308-21602_L	45	4 of 9	0.36	0.59	
h50_0559_fot_318-22435_L	39	4 of 9	0.36	0.60	
h50_0534_fot_146-23263_L	51	5 of 9	0.36	1.36	
h50_0534_fot_139-21077_L	83	5 of 9	0.36	0.65	
h50_0559_fot_404-13904_L	66	5 of 9	0.36	0.63	
h50_0559_fot_322-22769_L	66	5 of 9	0.35	0.73	
h50_0560_fot_508-20701_L	28	3 of 9	0.35	0.60	
h50_0559_fot_326-10825_L	51	5 of 9	0.35	0.71	
h50_0559_fot_328-10632_L	66	5 of 9	0.35	0.66	
h50_0559_fot_401-11216_L	49	5 of 9	0.35	0.72	
h50_0534_fot_151-20110_L	53	4 of 9	0.35	0.71	
h50_0559_fot_153-19826_L	57	5 of 9	0.35	0.69	
h50_0582_fot_183-11702_L	46	4 of 9	0.35	0.68	
h50_0559_fot_316-22303_L	51	4 of 9	0.35	0.78	
h50_0559_fot_318-22400_L	13	1 of 9	0.34	0.66	
h50_0559_fot_318-22429_L	62	5 of 9	0.34	0.71	
h50_0534_fot_304-21307_L	48	5 of 9	0.34	0.72	
h50_0559_fot_179-12246_L	78	5 of 9	0.34	0.75	
h50_0560_fot_508-20700_L	30	4 of 9	0.34	0.55	
h50_0559_fot_320-22601_L	65	5 of 9	0.34	0.69	
h50_0559_fot_324-11002_L	54	5 of 9	0.34	0.69	
h50_0559_fot_502-20581_L	17	3 of 9	0.34	0.61	
h50_0559_fot_309-21670_L	88	5 of 9	0.34	0.72	
h50_0582_fot_181-11986_L	41	4 of 9	0.34	0.66	
h50_0533_fot_151-20048_L	35	5 of 9	0.34	0.60	
h50_0559_fot_316-22299_L	46	5 of 9	0.34	0.64	
504 more photo(s)	---	---	---	---	

Statistic of 1820541 back-projected adjusted points from the statistic file. The table list 36 of 540 photos with an EO beyond the thresholds. The project consist of 8763 of 17528 photos from this camera. The table contain differences between the matched image points and back-projected adjusted points. Photos with at least one of the following conditions are visible:

- * **# of points** : Number of points/photo < 30 [points]
- * **Distribution** : Number of image tiles with more than 3 points < 6 [image tiles]
- * **RMS Ds [pixel]** : RMS difference in pixel > 0.7 [pixel]

Exterior orientation evaluation summary

Legend of histogram for number of tie points

X : Range for the number of tie points/photo.
Y : Number of images for the defined range (X).
Thr : Empirical threshold (30 points/photo) for the definition of weaker images.

Legend of histogram for distribution of tie points

X : Number of sufficient occupied image tiles with tie points. The image is divided into 9 equal image tiles.
Y : Number of images for the defined image tile occupation (X).
Thr : Empirical threshold (6 image tiles) for the definition of weaker images.

Legend of histogram for RMS values of tie points

X : Range for the RMS value.
Y : Number of images for the defined range (X).
RMS : RMS value for differences between the matched image points and back-projected adjusted points.
Thr : Statistical threshold ($0.72 \text{ [pixel]} = 3 \cdot \sigma$ from the block adjustment) for the definition of weaker images.

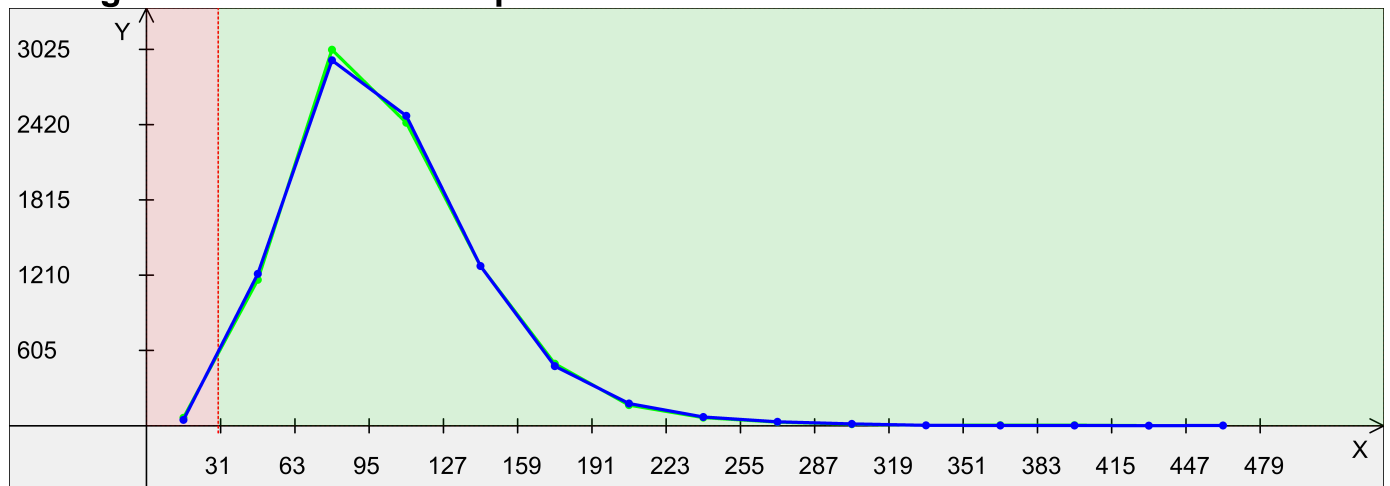
Statistical information about used elements for EO evaluation

Data base	: Statistic file (*.sta)
Number of photos	: 17527 of 17528
Number of camera(s)	: 2 of 2
Number of used image observations	: 1820541
Number of adjusted points	: 213790

Camera color assignment

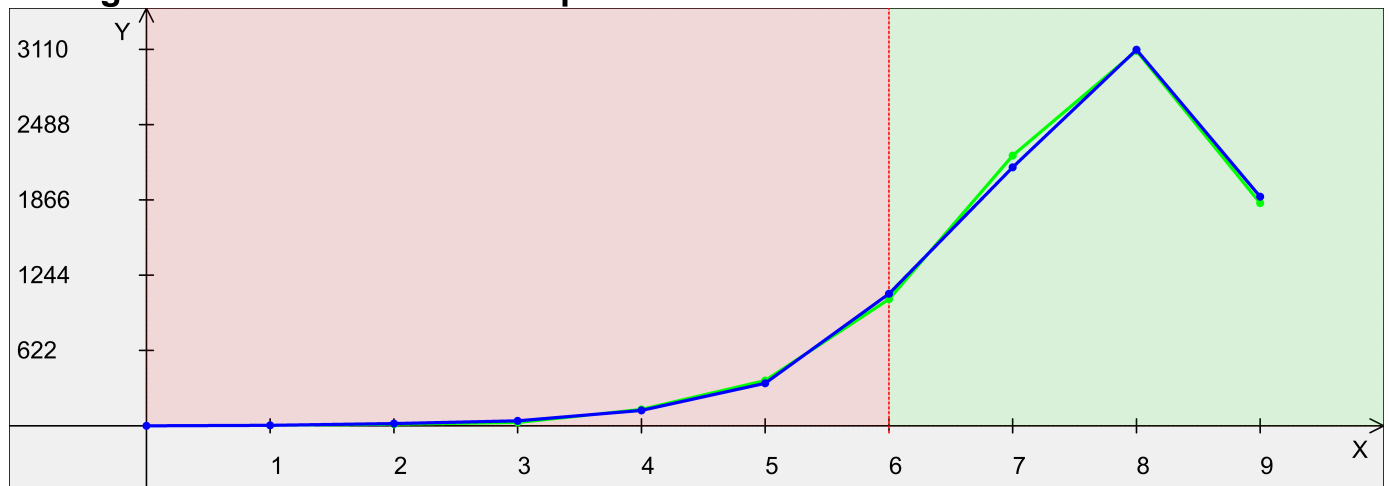
 : Threshold (Thr) for the actual evaluation criteria.
 : for Camera : Custom_right.
 : for Camera : Custom_left.
 : Range with acceptable photos.
 : Range with suspect photos.

Histogram for number of tie points



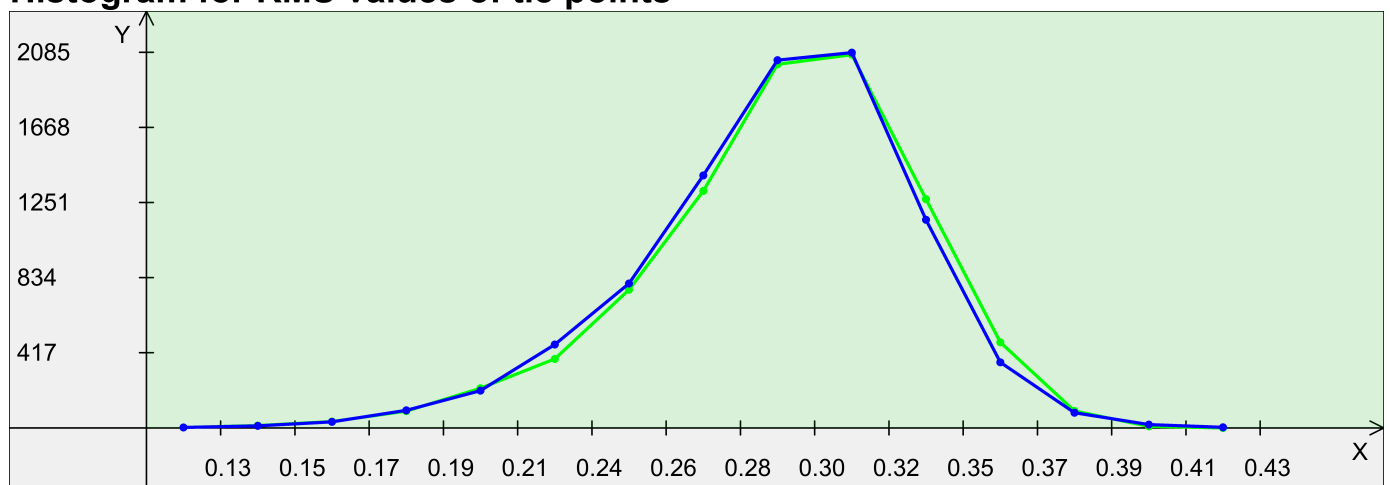
Graphic for 17527 photos with 2 camera(s). Evaluation criteria: [# of points/photo] < Thr (=30 [points/photo]).

Histogram for distribution of tie points



Graphic for 17527 photos with 2 camera(s). Evaluation criteria: [Distribution] < Thr (=6 [image tiles]).

Histogram for RMS values of tie points



Graphic for 17527 photos with 2 camera(s). Evaluation criteria: [RMS] > Thr (=0.72 [pixel]).

Block adjustment settings

Block Parameters

Image standard deviation:	X [mm]	Y [mm]	
automatic	0.002000	0.002000	
manual	0.002000	0.002000	
Object standard deviation:	X [m]	Y [m]	Z [m]
control points	0.030000	0.030000	0.045000
Earth curvature correction	OFF		
Refraction correction	OFF		

GNSS Parameters

Mode	ON		
Shift/Drift	Correction for complete block		
	X [m]	Y [m]	Z [m]
Shift	ON	ON	ON
Drift	OFF	OFF	OFF
Standard deviation	0.300000	0.300000	0.300000

IMU Parameters

Mode	ON		
Shift/Drift	OFF		
Boresight alignment	ON		
	Omega (X) [deg]	Phi (Y) [deg]	Kappa (Z) [deg]
Shift	---	---	---
Drift	OFF	OFF	OFF
Standard deviation	0.008000	0.008000	0.008000

Block adjustment results

Accuracy

Sigma naught	0.9053 [micron]
	0.2408 [pixel]

Mean standard deviation of translations

X [m]	Y [m]	Z [m]	Total [m]
0.0343	0.0217	0.0400	0.0570

Mean standard deviation of rotations

Omega [deg]	Phi [deg]	Kappa [deg]
0.00127003	0.00137492	0.00082405

Mean standard deviation of terrain points

X [m]	Y [m]	Z [m]	Total [m]
0.0143	0.0469	0.0549	0.0736

RMS values for GNSS

X [m]	Y [m]	Z [m]	Total [m]
0.2092	0.2626	0.1647	0.3739

RMS values for IMU

Omega (X) [deg]	Phi (Y) [deg]	Kappa (Z) [deg]	Total [deg]
0.00476980	0.00531649	0.00513934	0.00879937

GNSS shift/drift results

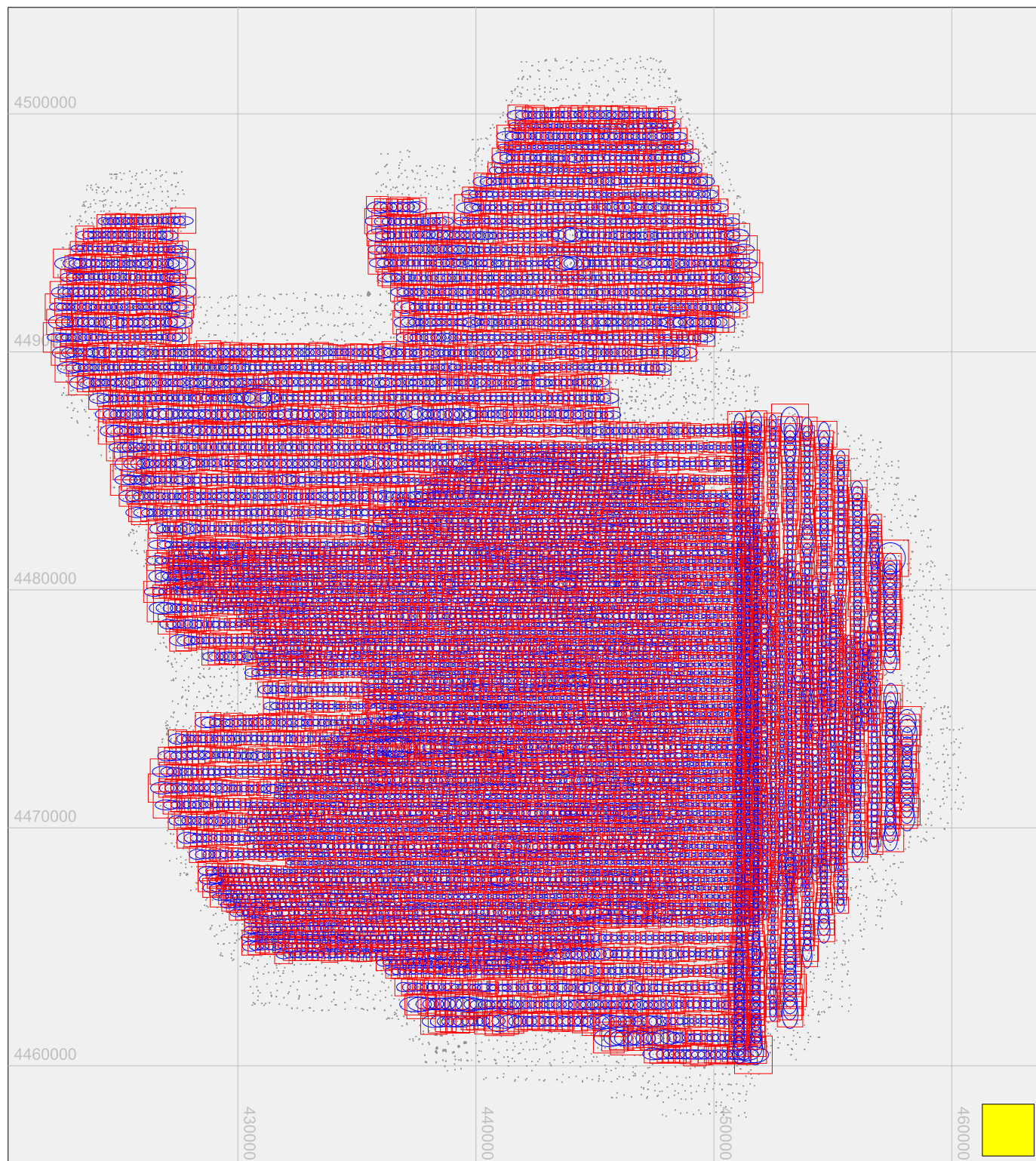
GNSS results

Profile	Order	X [m]	Y [m]	Z [m]
Block	constant	-0.0002	-0.0578	0.0892
	linear	0.0000	0.0000	-0.0000

constant : systematic shift

linear : time dependent drift

Exterior orientation (X,Y,Z) standard deviations (Custom_right)



Graphic with 8764 photos from the project. The camera locations are shown with its standard deviations for XYZ. The area has a planimetric extent of about: 42305 x 48706 [m].

- : Scale for the symbols. Symbol in the graphic is correlated to 0.160 [m] in the object.
- : Standard deviation XY for 8764 projection centers (min=0.0201, avg=0.0416, max=0.1330 [m]).
- : Standard deviation Z for 8764 projection centers (min=0.0192, avg=0.0399, max=0.1164 [m]).
- : Tie point location for 213790 points.

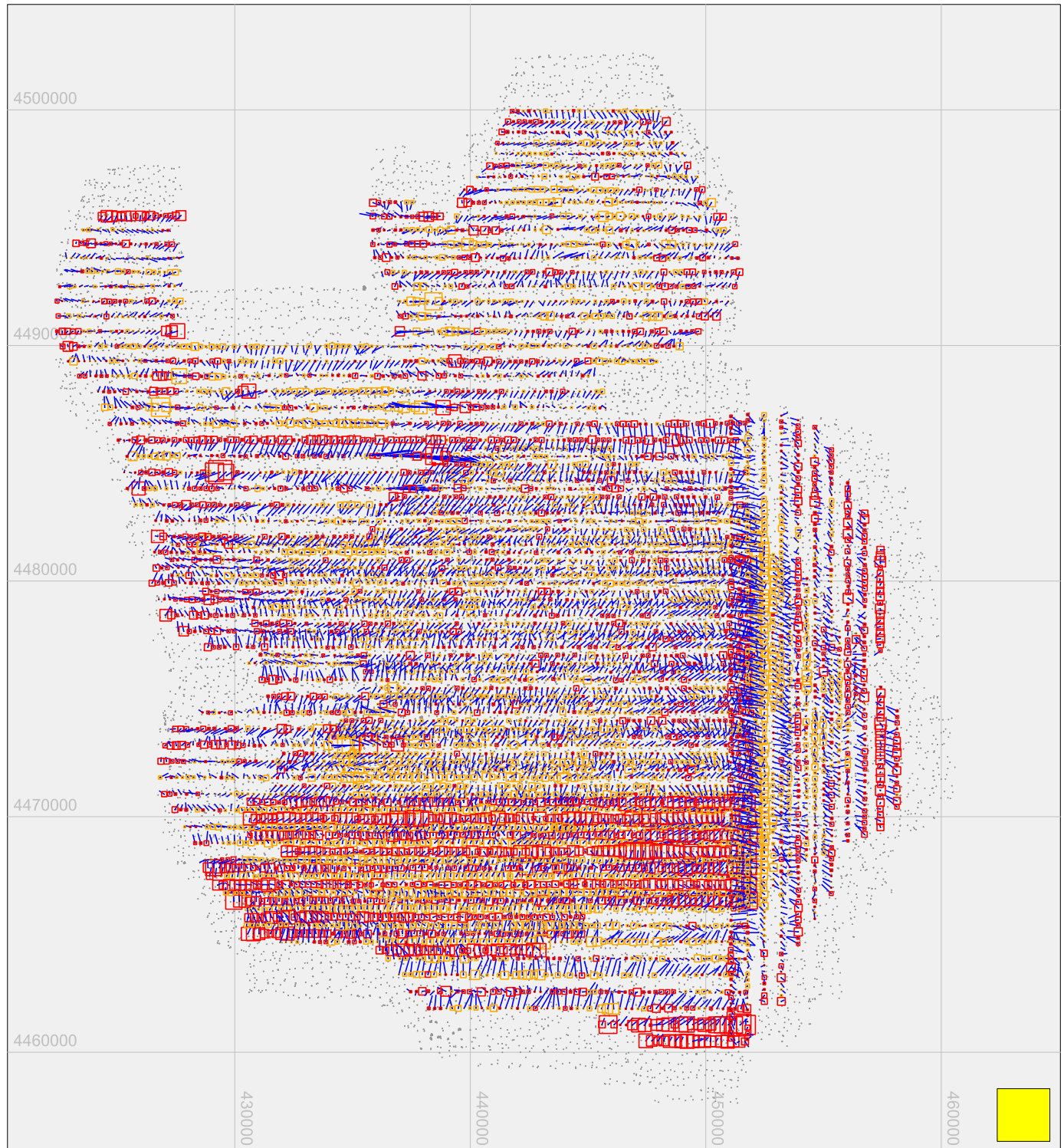
Exterior orientation (Omega,Phi,Kappa) standard deviations (Custom_right)



Graphic with 8764 photos from the project. The camera locations are shown with its standard deviations for omega,phi,kappa. The area has a planimetric extent of about: 42305 x 48706 [m].

- : Scale for the symbols. Symbol in the graphic is correlated to 0.00577 [deg] in the object.
- : Standard deviation omega(X) for 8764 projection centers (min=0.00060, avg=0.00126, max=0.00359 [deg]).
- : Standard deviation phi(Y) for 8764 projection centers (min=0.00051, avg=0.00138, max=0.00363 [deg]).
- : Standard deviation kappa(Z) for 8764 projection centers (min=0.00026, avg=0.00082, max=0.00421 [deg]).
- : Tie point location for 213790 points.

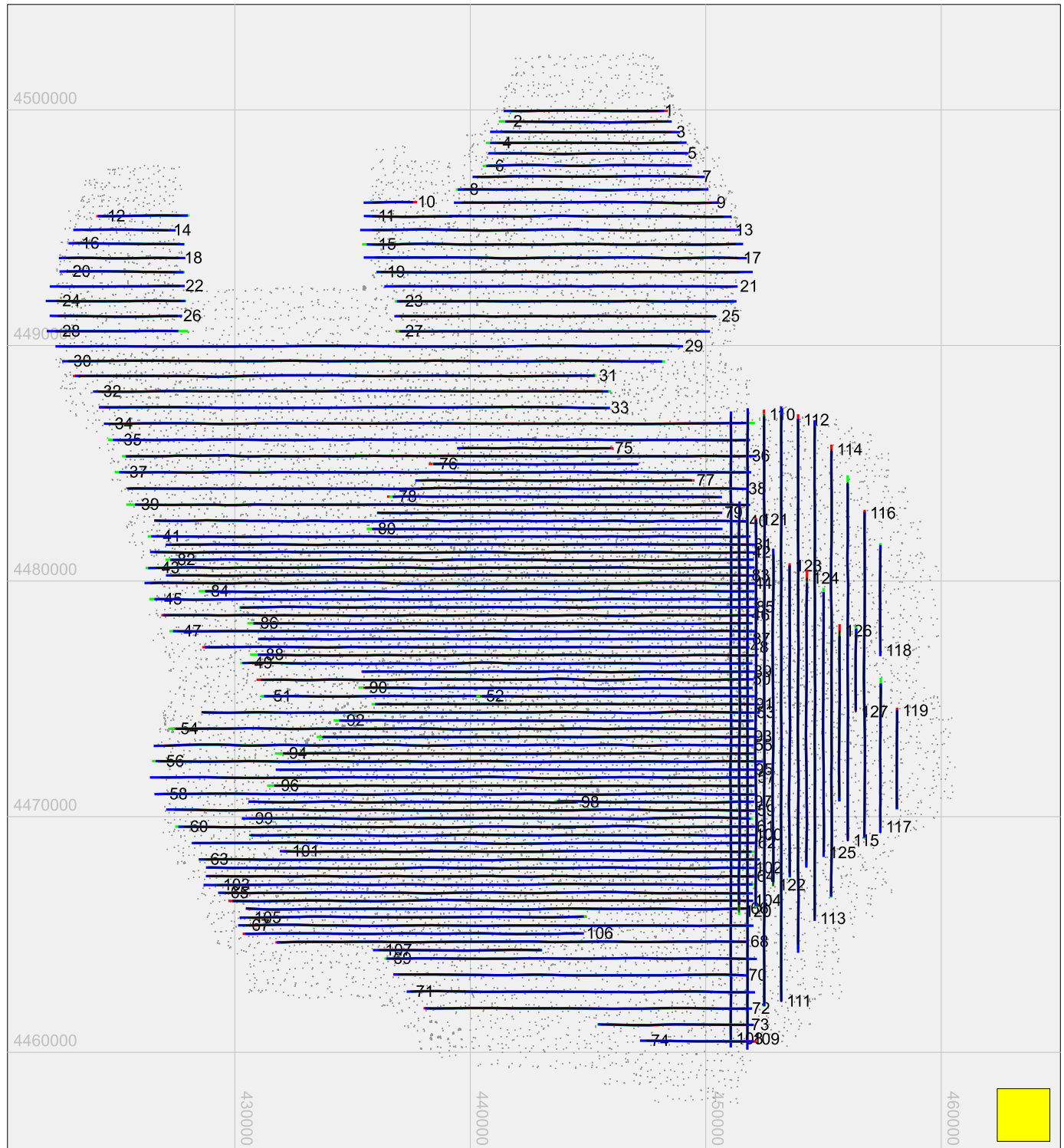
GNSS residuals (observed - adjusted) (Custom_right)



Graphic with 8764 used GNSS locations from the adjustment. The points are shown with its residuals for X,Y,Z from the adjustment. The area has a planimetric extent of about: 42305 x 48706 [m]. Residual is defined as: residual = observed - adjusted.

- : Scale for the symbols. Symbol in the graphic is correlated to 1.870 [m] in the object.
- : Residual XY for (8764) GNSS positions (min=0.0049, avg=0.2544, max=1.6890 [m]).
- : Residual Z for (pos.:4089/neg.:4675) GNSS positions (min=-1.4558, avg=0.1236, max=0.8192 [m]).
- : Number of eliminated GNSS observations: 0 of 8764
- : Tie point location for 213790 points.

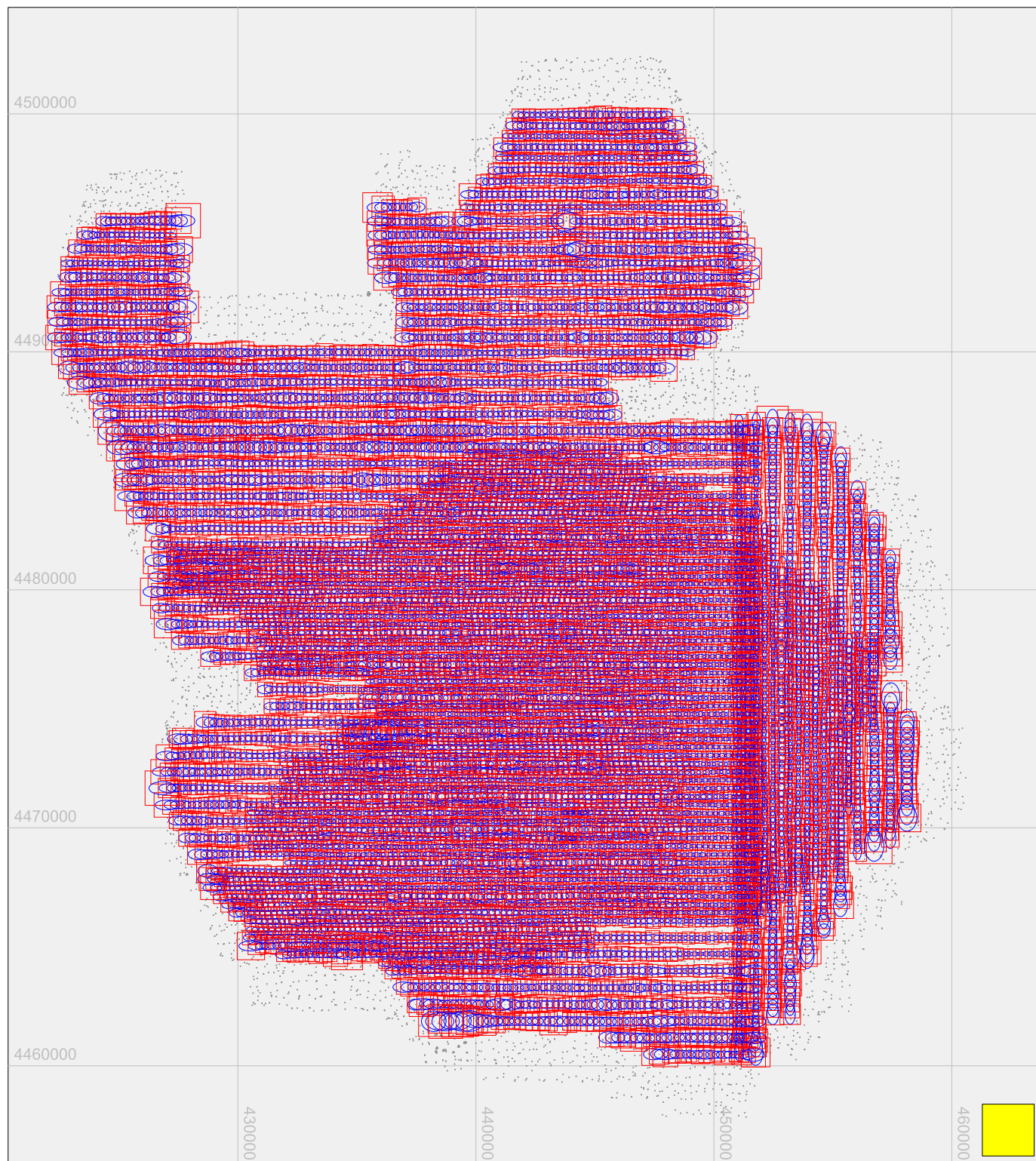
IMU residuals (observed - adjusted) (Custom_right)



Graphic with 8764 IMU locations from the adjustment. The points are shown with its residuals for omega,phi,kappa from the adjustment. The area has a planimetric extent of about: 42305 x 48706 [m]. Residual is defined as: residual = observed - adjusted.

- : Scale for the symbols. Symbol in the graphic is correlated to 0.08799 [deg] in the object.
- : Residual omega(X) for (8764) IMU positions (min=-0.01681, avg=0.00045, max=0.01647 [deg]).
- : Residual phi(Y) for (8764) IMU positions (min=-0.03130, avg=0.00008, max=0.01813 [deg]).
- : Residual kappa(Z) for (8764) IMU positions (min=-0.02084, avg=-0.00066, max=0.02158 [deg]).
- : Tie point location for 213790 points.

Exterior orientation (X,Y,Z) standard deviations (Custom_left)



Graphic with 8763 photos from the project. The camera locations are shown with its standard deviations for XYZ. The area has a planimetric extent of about: 42305 x 48706 [m].

- : Scale for the symbols. Symbol in the graphic is correlated to 0.160 [m] in the object.
- : Standard deviation XY for 8763 projection centers (min=0.0208, avg=0.0416, max=0.1148 [m]).
- : Standard deviation Z for 8763 projection centers (min=0.0189, avg=0.0401, max=0.1113 [m]).
- : Tie point location for 213790 points.

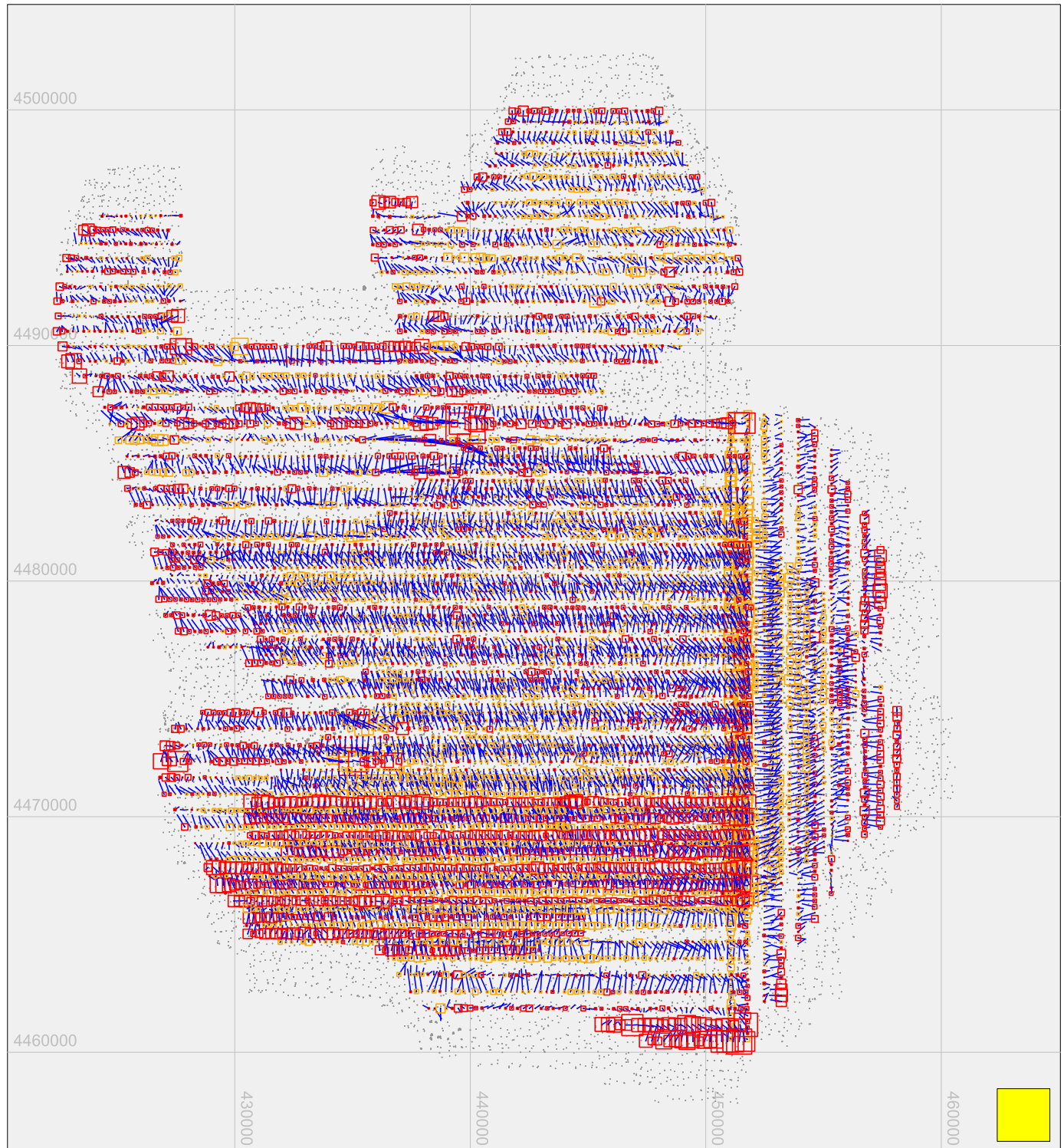
Exterior orientation (Omega,Phi,Kappa) standard deviations (Custom_left)



Graphic with 8763 photos from the project. The camera locations are shown with its standard deviations for omega,phi,kappa. The area has a planimetric extent of about: 42305 x 48706 [m].

- : Scale for the symbols. Symbol in the graphic is correlated to 0.00579 [deg] in the object.
- : Standard deviation omega(X) for 8763 projection centers (min=0.00055, avg=0.00128, max=0.00364 [deg]).
- : Standard deviation phi(Y) for 8763 projection centers (min=0.00052, avg=0.00137, max=0.00376 [deg]).
- : Standard deviation kappa(Z) for 8763 projection centers (min=0.00024, avg=0.00082, max=0.00432 [deg]).
- : Tie point location for 213790 points.

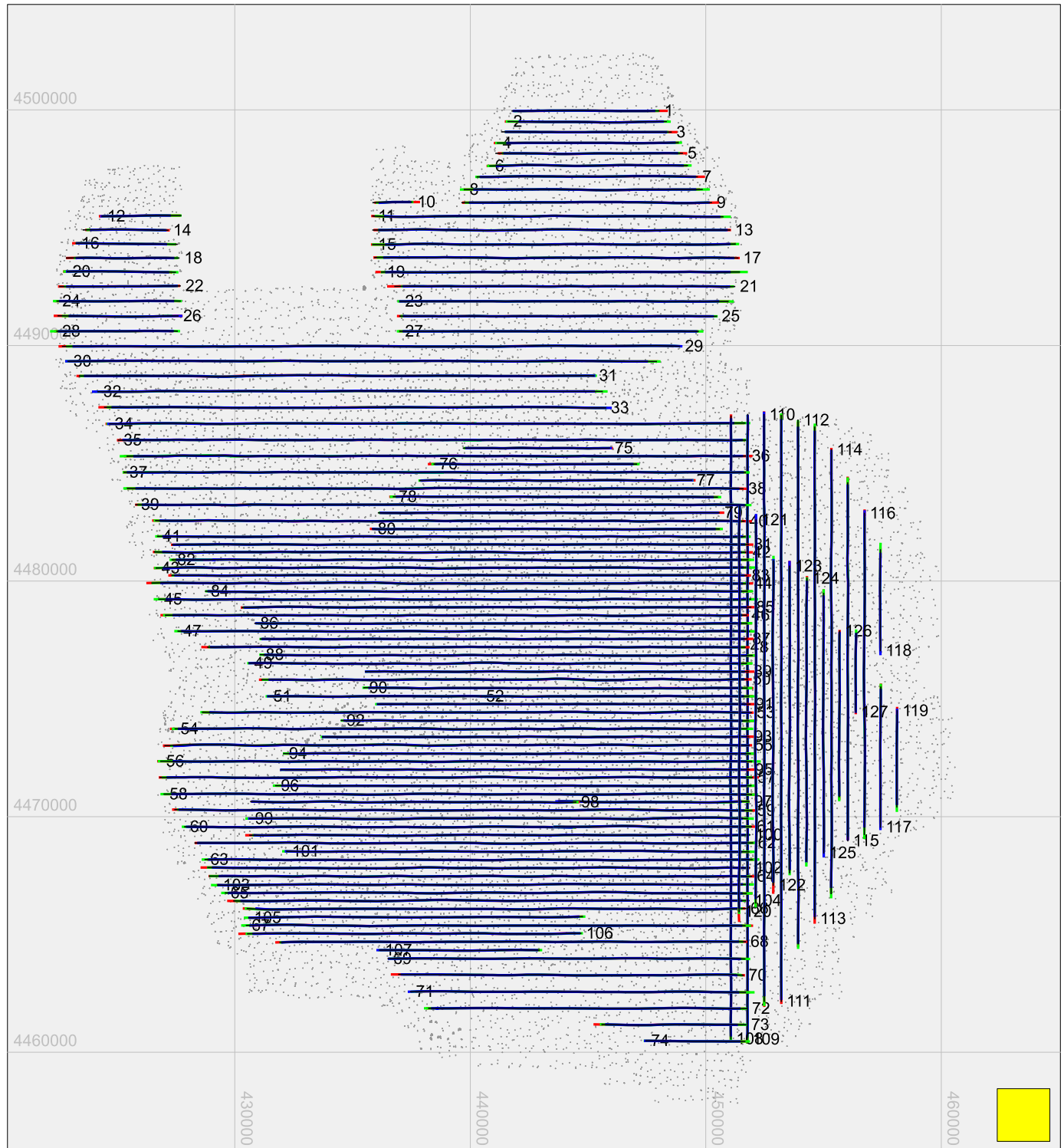
GNSS residuals (observed - adjusted) (Custom_left)



Graphic with 8763 used GNSS locations from the adjustment. The points are shown with its residuals for X,Y,Z from the adjustment. The area has a planimetric extent of about: 42305 x 48706 [m]. Residual is defined as: residual = observed - adjusted.

- : Scale for the symbols. Symbol in the graphic is correlated to 1.870 [m] in the object.
- : Residual XY for (8763) GNSS positions (min=0.0044, avg=0.3425, max=1.8982 [m]).
- : Residual Z for (pos.:4106/neg.:4657) GNSS positions (min=-0.5808, avg=0.1251, max=1.3909 [m]).
- : Number of eliminated GNSS observations: 0 of 8763
- : Tie point location for 213790 points.

IMU residuals (observed - adjusted) (Custom_left)



Graphic with 8763 IMU locations from the adjustment. The points are shown with its residuals for omega,phi,kappa from the adjustment. The area has a planimetric extent of about: 42305 x 48706 [m]. Residual is defined as: residual = observed - adjusted.

- : Scale for the symbols. Symbol in the graphic is correlated to 0.08799 [deg] in the object.
- : Residual omega(X) for (8763) IMU positions (min=-0.01659, avg=0.00050, max=0.02015 [deg]).
- : Residual phi(Y) for (8763) IMU positions (min=-0.03234, avg=-0.00099, max=0.03614 [deg]).
- : Residual kappa(Z) for (8763) IMU positions (min=-0.02257, avg=0.00165, max=0.02524 [deg]).
- : Tie point location for 213790 points.

Ground control points

Ground control points from statistic file

ID	Type	X	Y	Z	Unit	Remark
PA1003	Full	428254.6900	4477344.9770	713.8480	m	
PA1007	Full	431700.9900	4474869.3730	696.5530	m	
PA1009	Vertical			713.9180	m	
PA1011	Full	427729.9790	4473476.2760	710.0290	m	
PA1013	Full	430018.1670	4465939.8580	714.1930	m	
PA1015	Full	433409.2680	4465354.5270	678.6370	m	
PA1017	Full	436032.7700	4465182.3830	638.8820	m	
PA1018	Full	436041.6240	4465182.5810	638.6160	m	
PA1023	Full	445612.8540	4460764.7620	560.7010	m	
PA1027	Full	453182.0110	4463691.2980	539.3530	m	
PA1031	Full	450098.2250	4466329.4940	626.2170	m	
PA1033	Full	450375.4520	4468741.8360	648.8050	m	
PA1034	Full	450379.6100	4468749.7060	648.6660	m	
PA1035	Full	455056.9300	4466400.5070	594.9900	m	
PA1036	Full	455068.5880	4466418.0480	596.3110	m	
PA1037	Full	455970.8210	4468161.4220	642.9910	m	
PA1042	Full	458143.1610	4471127.8880	553.7170	m	
PA1043	Full	457865.7240	4474841.5350	561.2060	m	
PA1045	Full	457238.6960	4479464.4060	598.8840	m	
PA1050	Full	455966.2520	4482102.0820	668.8740	m	
PA1051	Vertical			711.9650	m	
PA1057	Full	448739.5800	4489569.4180	636.0170	m	
PA1059	Full	445248.0740	4489778.7810	687.0410	m	
PA1065	Full	440705.8470	4478233.5230	701.5380	m	
PA1066	Full	440745.0710	4478232.4560	700.9110	m	
PA107	Full	453822.2580	4486633.9740	590.1760	m	
PA147	Full	432707.7900	4485869.9790	681.8830	m	
PA148	Full	432738.7600	4485862.8300	682.1500	m	
PA157	Full	445947.8080	4488441.5550	676.9650	m	
PA158	Full	445952.7310	4488407.9690	676.9220	m	
PA194	Full	432208.1150	4474289.6850	701.0360	m	
PA196	Full	431900.8250	4475029.8010	691.7510	m	
PA2001	Full	424296.7830	4495961.2060	933.7970	m	
PA2001_BIS	Full	424299.6010	4495978.2260	938.6500	m	
PA2001_BIS2	Full	424293.5850	4495973.9610	937.0120	m	
PA2003_BIS	Full	427729.1830	4495826.6310	878.1230	m	
PA2003_BIS2	Full	427751.4610	4495832.3880	877.1400	m	
PA2004	Full	423761.2350	4495527.6620	933.9180	m	

Ground control points from statistic file

ID	Type	X	Y	Z	Unit	Remark
PA2004_BIS	Full	423769.2100	4495555.4560	934.0580	m	
PA2016	Full	422659.3130	4492771.6140	860.9600	m	
PA2016_BIS	Full	422643.6070	4492778.4530	862.4170	m	
PA2033	Full	441962.9260	4500565.9870	748.7280	m	
PA2035	Full	446269.3030	4500754.6760	645.1950	m	
PA2035_BIS	Full	446273.0000	4500760.6840	646.6980	m	
PA2039	Full	448109.4600	4500286.0330	635.5270	m	
PA2039_BIS	Full	448058.9640	4500221.3560	641.6810	m	
PA2042	Full	435869.7680	4496766.7770	716.1660	m	
PA2043	Full	437332.0590	4496866.8120	683.7310	m	
PA2043_BIS	Full	437294.2560	4496946.0790	682.3640	m	
PA2051	Full	439600.5760	4496086.3790	718.0170	m	
PA2051_BIS	Vertical			718.0110	m	
PA2060	Full	450787.7210	4495420.5950	605.3540	m	
PA2068	Full	451179.9010	4493499.0090	597.5890	m	
PA2087	Full	422974.9900	4489304.3970	742.0880	m	
PA2087_BIS	Full	422969.4440	4489288.4180	742.5360	m	
PA2099	Full	425733.3570	4483176.5950	704.6340	m	
PA2108	Full	430955.8700	4475829.1160	707.1780	m	
PA2115	Full	434312.3650	4464277.4090	671.5670	m	
PA2132	Full	436476.4260	4490677.2550	694.1110	m	
PA2132_BIS	Vertical			694.5760	m	
PA407	Full	440276.0130	4461163.3770	600.9450	m	
PA408	Full	440262.8400	4461150.2060	601.0130	m	
PA409	Full	438190.2580	4462709.5570	627.7410	m	
PA416	Vertical			643.9500	m	
PA417	Vertical			647.2900	m	
Minimum		422643.6070	4460764.7620	539.3530	m	selected system
Maximum		458143.1610	4500760.6840	938.6500	m	selected system
Area extent		35499.5540	39995.9220	399.2970	m	selected system

List of 65 ground control points defined in the statistic file. Statistics defined in the selected coordinate system.

Ground control points

Ground control point residuals (given - adjusted)

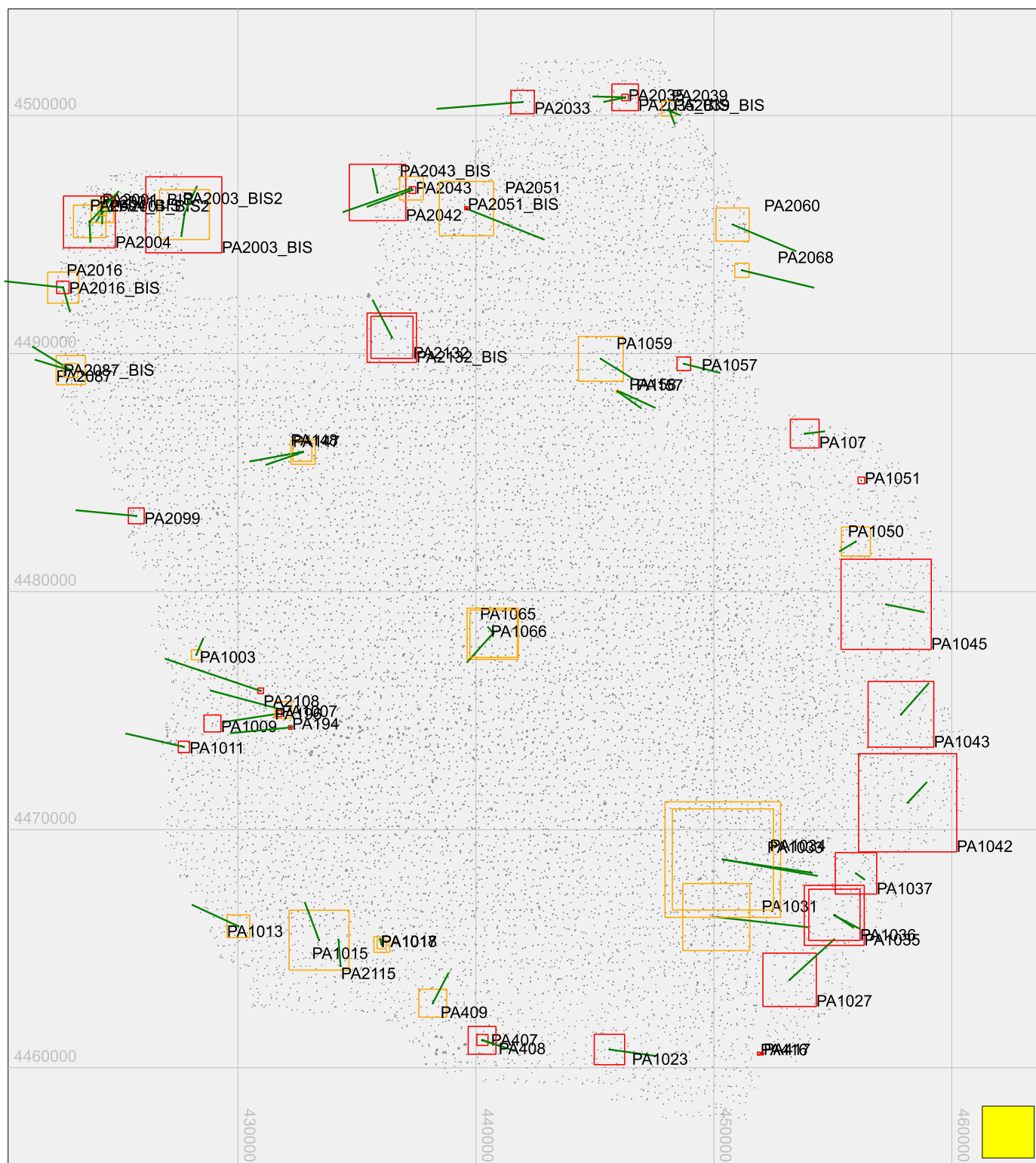
ID	#	X [m]	Y [m]	Z [m]	Total [m]	Remark
PA1003	7	0.0163	0.0384	-0.0242	0.0482	
PA1007	23	-0.1309	-0.0200	0.0149	0.1333	
PA1009	7			0.0410	0.0410	
PA1011	6	-0.1390	0.0320	0.0275	0.1452	
PA1013	13	-0.1102	0.0512	-0.0548	0.1333	
PA1015	18	-0.0338	0.0900	-0.1445	0.1736	
PA1017	3	-0.0031	0.0136	-0.0221	0.0261	
PA1018	17	-0.0033	0.0127	-0.0384	0.0406	
PA1023	7	0.1090	-0.0152	0.0734	0.1323	
PA1027	7	0.1076	0.0977	0.1289	0.1943	
PA1031	35	0.2193	-0.0245	-0.1617	0.2736	
PA1033	44	0.2144	-0.0316	-0.2788	0.3531	
PA1034	45	0.2271	-0.0395	-0.2438	0.3356	
PA1035	10	0.0600	-0.0316	0.1448	0.1599	
PA1036	9	0.0452	-0.0304	0.1238	0.1352	
PA1037	12	0.0200	-0.0144	0.1001	0.1031	
PA1042	11	0.0452	0.0489	0.2369	0.2461	
PA1043	18	0.0659	0.0742	0.1587	0.1872	
PA1045	12	0.0907	-0.0188	0.2177	0.2366	
PA1050	6	-0.0384	-0.0228	-0.0701	0.0832	
PA1051	7			0.0161	0.0161	
PA1057	7	0.0858	-0.0215	0.0327	0.0943	
PA1059	17	0.0755	-0.0471	-0.1083	0.1402	
PA1065	24	-0.0612	-0.0685	-0.1238	0.1541	
PA1066	17	-0.0133	0.0154	-0.1145	0.1163	
PA107	7	0.0470	0.0055	0.0696	0.0842	
PA147	11	-0.1254	-0.0231	-0.0461	0.1355	
PA148	7	-0.0881	-0.0305	-0.0590	0.1103	
PA157	15	0.0901	-0.0410	0.0002	0.0990	
PA158	11	0.0563	-0.0399	-0.0068	0.0693	
PA194	25	-0.1440	-0.0137	0.0088	0.1449	
PA196	19	-0.1741	0.0464	-0.0402	0.1846	
PA2001	5	-0.0144	-0.0240	-0.0208	0.0349	
PA2001_BIS	5	-0.0001	-0.0294	-0.0547	0.0621	
PA2001_BIS2	5	0.0369	0.0014	-0.0198	0.0419	
PA2003_BIS	3	0.0311	0.0677	0.1833	0.1979	
PA2003_BIS2	3	-0.0073	-0.0517	-0.1204	0.1312	
PA2004	7	0.0696	0.0732	0.1250	0.1607	

Ground control point residuals (given - adjusted)

ID	#	X [m]	Y [m]	Z [m]	Total [m]	Remark
PA2004_BIS	7	0.0016	-0.0493	-0.0786	0.0928	
PA2016	6	0.0160	-0.0573	-0.0751	0.0958	
PA2016_BIS	6	-0.1392	0.0147	0.0301	0.1432	
PA2033	13	-0.2057	-0.0165	0.0566	0.2139	
PA2035	10	-0.0503	-0.0104	0.0159	0.0537	
PA2035_BIS	10	-0.0766	0.0021	0.0643	0.1000	
PA2039	10	0.0137	-0.0371	-0.0355	0.0532	
PA2039_BIS	12	0.0296	-0.0117	0.0023	0.0319	
PA2042	4	-0.0115	0.0560	0.1363	0.1478	
PA2043	7	-0.1080	-0.0398	0.0163	0.1162	
PA2043_BIS	6	-0.1641	-0.0572	-0.0569	0.1829	
PA2051	10	0.1864	-0.0741	-0.1310	0.2396	
PA2051_BIS	11			0.0076	0.0076	
PA2060	10	0.1519	-0.0638	-0.0802	0.1832	
PA2068	2	0.1721	-0.0418	-0.0345	0.1804	
PA2087	7	-0.0913	0.0561	-0.0702	0.1281	
PA2087_BIS	7	-0.0843	0.0254	-0.0340	0.0944	
PA2099	8	-0.1442	0.0136	0.0383	0.1498	
PA2108	18	-0.2294	0.0771	0.0138	0.2424	
PA2115	12	-0.0049	0.0636	0.0022	0.0638	
PA2132	12	-0.0460	0.0889	0.1016	0.1427	
PA2132_BIS	12			0.1193	0.1193	
PA407	7	0.0412	-0.0140	0.0271	0.0512	
PA408	7	0.0792	-0.0254	0.0672	0.1069	
PA409	14	0.0373	0.0716	-0.0673	0.1051	
PA416	2			0.0076	0.0076	
PA417	2			0.0061	0.0061	
Maximum		-0.2294	0.0977	-0.2788		
Mean		0.0000	0.0000	-0.0000		
Sigma		0.1060	0.0458	0.0989		
RMSE(x,y,z)		0.1051	0.0454	0.0982		
RMSEr		0.1145	SQRT(RMSEx * RMSEx + RMSEy * RMSEy)			
ACCr (at 95% Confidence Level)		0.1981	RMSEr * 1.7308			
ACCz (at 95% Confidence Level)		0.1924	RMSEz * 1.9600			

List of 65 considered ground control points defined in the statistic file.

Ground control point residuals



Graphic with 65 ground control points from the project. The points are shown with its residuals for XYZ from the adjustment. The area has a planimetric extent of about: 42305 x 48706 [m]. Residual is defined as: residual = given - adjusted.

- : Scale for the symbols. Symbol in the graphic is correlated to 0.125 [m] in the object.
- : Residual XY (59) for ground control points (min=0.0131, avg=0.0984, max=0.2420 [m]).
- : Residual Z (pos.:35/neg.:30) for ground control points (min=-0.2788, avg=-0.0000, max=0.2369 [m]).
- : Tie point location for 213790 points.

 : Scale for the symbols. Symbol in the graphic is correlated to 0.021 [m] in the object.
 : Standard deviation XY for 59 ground control points (min=0.0069, avg=0.0130, max=0.0165 [m]).
 : Standard deviation Z for 65 ground control points (min=0.0068, avg=0.0137, max=0.0200 [m]).
 : Tie point location for 213790 points.