




"From the wisdom of the ages
to the challenges of modern world"

FIG WORKING WEEK 2015

17-21 MAY SOFIA BULGARIA

Organised by:   CHAMBER OF GRADUATED SURVEYORS

Platinum Sponsors:  

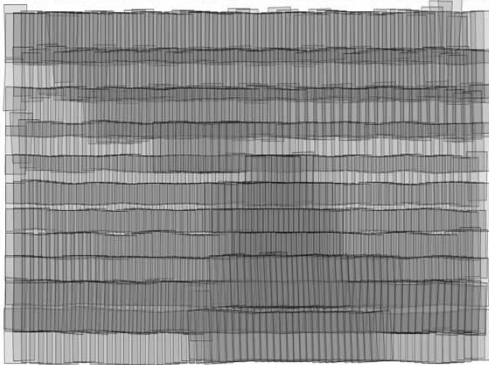


"From the wisdom of the ages
to the challenges of modern world"



FIG WORKING WEEK 2015



17-21 MAY SOFIA BULGARIA

Accuracy Evaluation and Quality Control of Digital Orthomapsheets



- Digital orthoimages
- Geometric Accuracy and Quality
- Ground sample distances
– 0,36 m.

Platinum Sponsors:   CHAMBER OF GRADUATED SURVEYORS

Platinum Sponsors:  



"From the wisdom of the ages
to the challenges of modern world"

FIG WORKING WEEK 2015
17-21 MAY SOFIA BULGARIA

Accuracy Evaluation and Quality Control of Digital Orthomapsheets

Orthomapsheet generation process

- Digital block aerial triangulation
- Digital terrain extraction and editing
- Mosaicking
- Tiling into orthomapsheet - sheets



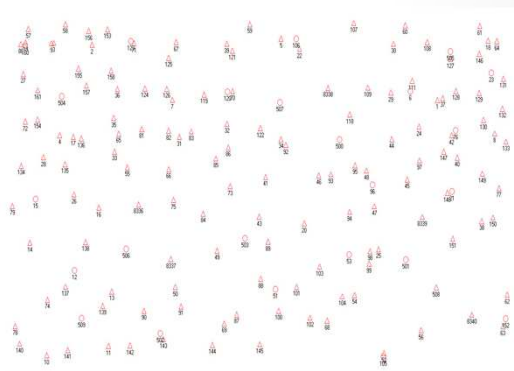
Platinum Sponsors:



"From the wisdom of the ages
to the challenges of modern world"

FIG WORKING WEEK 2015
17-21 MAY SOFIA BULGARIA

Accuracy Evaluation and Quality Control of Digital Orthomapsheets



Digital block aerial triangulation

- Accuracy
- Tie points
- Ground Control Points



Platinum Sponsors:

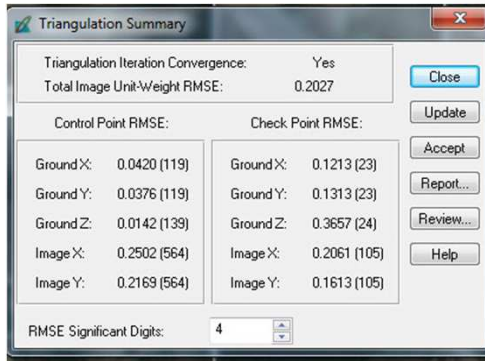




"From the wisdom of the ages
to the challenges of modern world"

FIG WORKING WEEK 2015
17-21 MAY SOFIA BULGARIA

Accuracy Evaluation and Quality Control of Digital Orthomap-sheets



Results

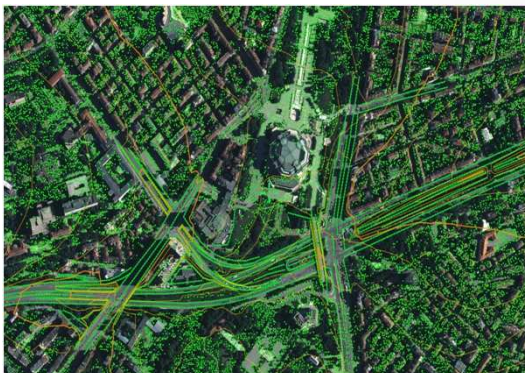
- **Planimetric accuracy – 0,18 m.**
- **Linear accuracy – 0,78 m.**
- **M 1:2 500**



"From the wisdom of the ages
to the challenges of modern world"

FIG WORKING WEEK 2015
17-21 MAY SOFIA BULGARIA

Accuracy Evaluation and Quality Control of Digital Orthomap-sheets



Digital Terrain Model

- **Cells size – 4 m.**
- **Editing**
- **Vertical accuraci**
- **Flat area – 0,8 m.**
- **Mountains – 2,0 m.**





"From the wisdom of the ages
to the challenges of modern world"

FIG WORKING WEEK 2015
17-21 MAY SOFIA BULGARIA

Accuracy Evaluation and Quality Control of Digital Orthomap-sheets



- Orthorectification
- Mosaicking
- Tiling into orthomap - sheets



Platinum Sponsors:



"From the wisdom of the ages
to the challenges of modern world"

FIG WORKING WEEK 2015
17-21 MAY SOFIA BULGARIA

Accuracy Evaluation and Quality Control of Digital Orthomap-sheets



Mosaicking

- Sim line generation and editing
- Relative control
- 1 pixel – first class orthographic image



Platinum Sponsors:





"From the wisdom of the ages
to the challenges of modern world"

FIG WORKING WEEK 2015
17-21 MAY SOFIA BULGARIA

Accuracy Evaluation and Quality Control of Digital Orthomap-sheets



Tilling into orthomap - sheets

- GeoTIFF
- RGB
- 8 Bit



"From the wisdom of the ages
to the challenges of modern world"

FIG WORKING WEEK 2015
17-21 MAY SOFIA BULGARIA

Accuracy Evaluation and Quality Control of Digital Orthomap-sheets

point	GPS observation (meters)		orthomap-sheet (meters)		difference		squared difference		sum of squared differences
	X	Y	X	Y	X	Y	X	Y	
1	4734619.487	196427.046	4734619.792	196426.690	-0.305	0.356	0.093	0.127	0.220
2	4734620.607	197673.769	4734620.622	197673.994	-0.015	-0.225	0.000	0.051	0.021
3	4735301.641	196685.318	4735301.796	196685.010	-0.155	0.308	0.024	0.095	0.119
4	4734881.372	197127.194	4734881.881	197127.301	-0.509	-0.107	0.095	0.011	0.107
5	4734371.337	198718.493	4734371.657	198718.740	-0.320	-0.247	0.104	0.061	0.075
6	4734023.530	196333.140	4734023.831	196332.992	-0.311	0.148	0.097	0.022	0.119
7	4734354.332	197649.733	4734354.831	197649.938	-0.299	-0.225	0.089	0.051	0.140
8	4734192.810	196682.842	4734192.800	196683.098	0.010	-0.256	0.000	0.066	0.066
9	4733347.251	196686.690	4733347.245	196686.547	0.006	0.143	0.000	0.020	0.020
10	4735252.899	197745.880	4735252.988	197746.228	-0.099	-0.348	0.010	0.121	0.131
11	4733874.844	198559.887	4733874.610	198559.998	0.234	-0.111	0.055	0.012	0.067
12	4733600.403	198911.838	4733600.300	198912.029	0.023	-0.171	0.001	0.029	0.030
13	4733306.836	199564.062	4733307.188	199564.025	-0.352	0.037	0.110	0.001	0.112
14	4732293.834	198384.265	4732293.549	198384.281	0.285	-0.016	0.081	0.000	0.081
15	4732840.119	198143.668	4732840.440	198143.966	-0.321	-0.318	0.103	0.101	0.204
16	4732266.300	198313.627	4732266.413	198313.794	-0.113	-0.167	0.013	0.028	0.041
17	4732522.713	199488.435	4732522.636	199488.590	0.077	-0.155	0.006	0.018	0.024
18	4732971.035	199922.951	4732971.218	199922.613	-0.183	0.338	0.033	0.114	0.148
19	4733379.774	199694.295	4733379.963	199694.521	-0.189	-0.226	0.036	0.051	0.087
20	4735238.918	197345.494	4735238.582	197345.198	0.336	0.296	0.113	0.088	0.201
sum							0.974	1.068	2.041
average							0.049	0.053	0.102
RMSD							0.221	0.231	0.319

Accuracy assessment

- Absolute control
- 20 – check points
- National Standard for Spatial Data Accuracy - 0,55 m.

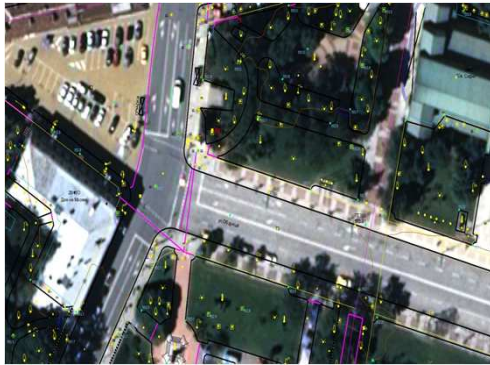




"From the wisdom of the ages
to the challenges of modern world"

FIG WORKING WEEK 2015
17-21 MAY SOFIA BULGARIA

Accuracy Evaluation and Quality Control of Digital Orthomap-sheets



- Comparison assessment
- Differences – 1,5 pixels



Platinum Sponsors:



"From the wisdom of the ages
to the challenges of modern world"

FIG WORKING WEEK 2015
17-21 MAY SOFIA BULGARIA

Accuracy Evaluation and Quality Control of Digital Orthomap-sheets



- Quality control



Platinum Sponsors:





"From the wisdom of the ages
to the challenges of modern world"

FIG WORKING WEEK 2015
17-21 MAY SOFIA BULGARIA

Accuracy Evaluation and Quality Control of Digital Orthomap-sheets



Conclusion

- Accuracy of Digital Block Aerial Triangulation – 0,79 m.
- M 1: 2 500
- Accuracy of Digital Terrain model - 0,8 – 2 m.
- Accuracy of Orthoimages - 0,55 m.



Platinum Sponsors:



"From the wisdom of the ages
to the challenges of modern world"

FIG WORKING WEEK 2015
17-21 MAY SOFIA BULGARIA

Accuracy Evaluation and Quality Control of Digital Orthomap-sheets

QUESTIONS ?



Platinum Sponsors:

