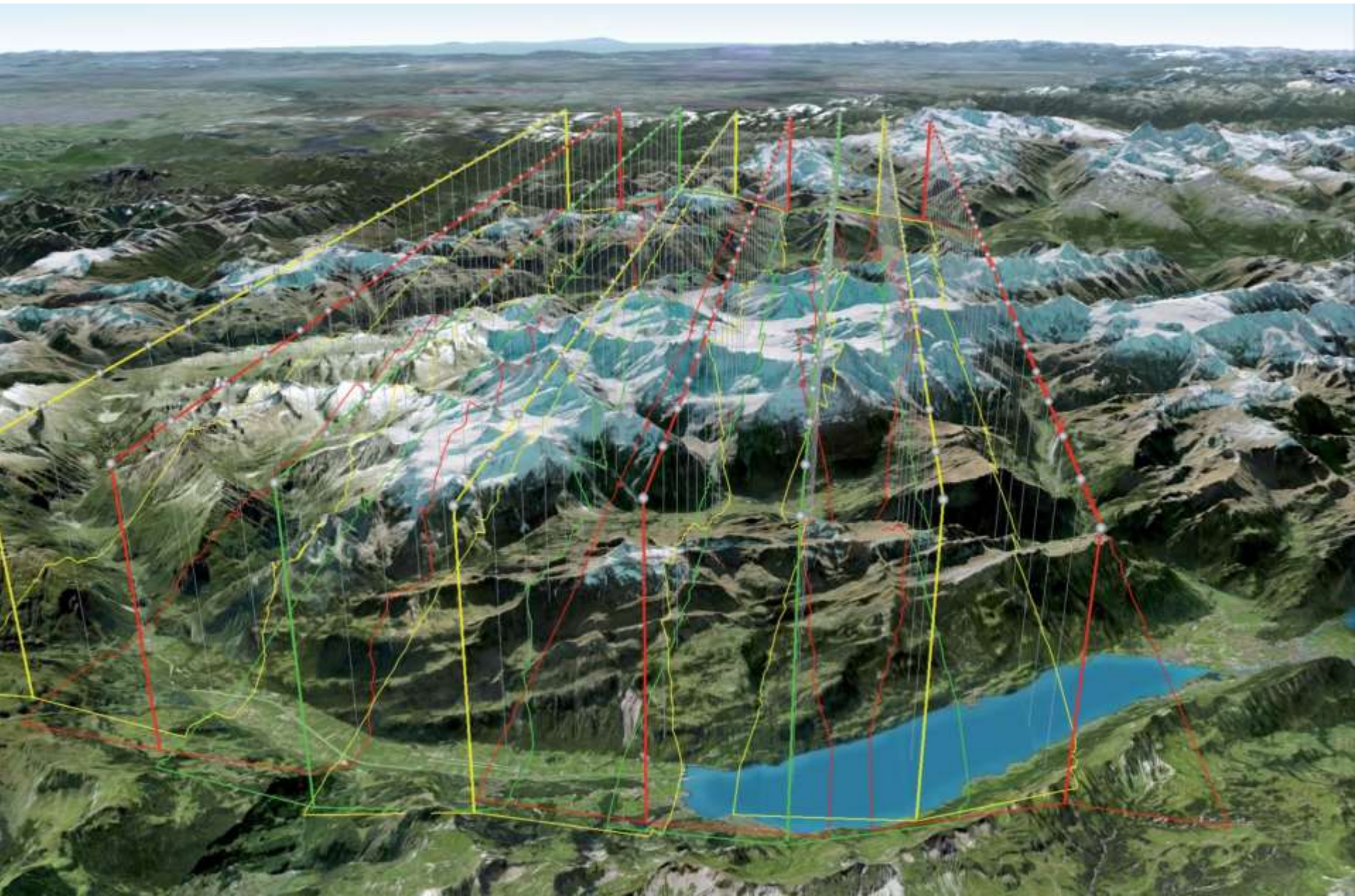


- 3D Flight Planning
- Cost estimation
- Quality control
- Documentation
- Flight Management System

3D Flight Planning



3D Flight Planning

TopoFlight D:\kb\TopoFlight\TFPoster\2012\TF_Projekte\W_Glarus_2_UOX\topoflight.tfkgp

Project Options Language Tools Links Help

Vexcel UltraCam XP

Line	5		
Nr of images	55	sc min	1: 44694
Flying height	4677m / 15000ft	sc max	1: 13554
f [mm]	100.0	sc mean	1: 21526
pixel sensor [mic]	8	max[cm]	26.9
mean GSD [cm]	18.9	min[cm]	8.1

No. image 20

Overl. min	50	sc min	1: 30534
Overl. max	71	sc mean	1: 25591
		sc max	1: 22089
mean GSD [cm]	15.4	max[cm]	18.3
		min[cm]	13.3

15000 m

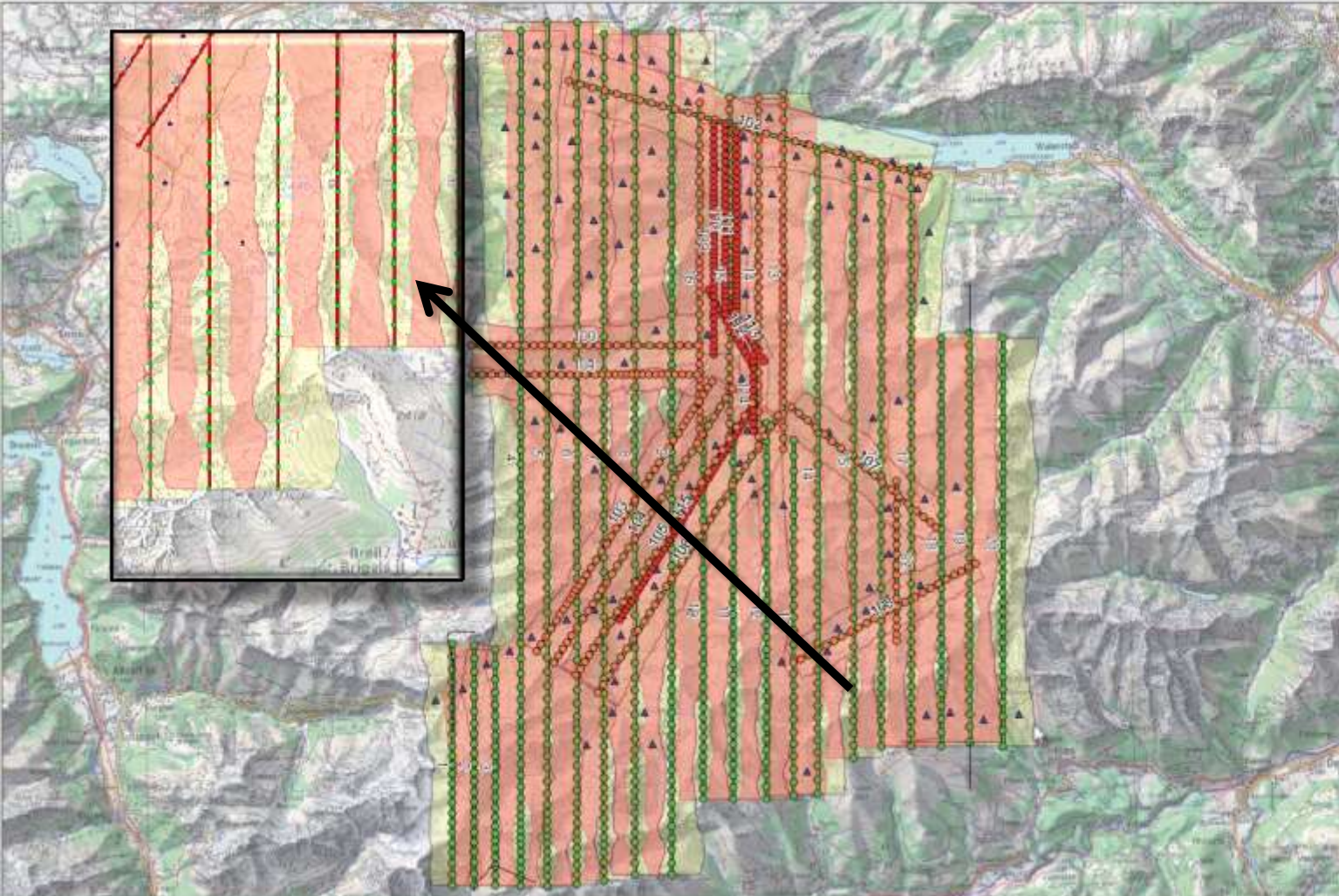
- Track.shp
- RangefinderPoints.shp
- LineExtension.shp
- LineLabels.shp
- 1000m_vl.dgn
- Karlen_GL.dgn
- Image centers
- Flight lines
- Ground control points
- Grid.shp
- Outlines.shp
- Area of interest
- ImageCoverage.shp
- RealModels.shp
- Covered area by atp
- QualityControl.tif
- 2FD047AF-7888-4A74-988D-F299A788449F.gx
- CH-NE_fark.tif
- CH-SE_fark.tif
- vnaGSD.tif

x: 714208.4 y: 197991.0 z: 2388m / 7835ft 8° 56' 17.24" E 46° 55' 23.53" N 1:213769 Move the mouse over the flight line to get line and image information

3D Flight Planning: the terrain effects the sidelap

TopoFlight D:\kb\TopoFlight\TFPoster\2012\TF_Projekt\Kt_Glarus_2_UCX\topoflight.tkgp

Project Options Language Tools Links Help



Vexcel: UltraCam XP:

Line	5			
Nr of images	65	sc min	1.4694	
Flying height	4877m / 16000ft	sc max	1.13554	
f [mm]	100.0	sc mean	1.31526	
pixel sensor [mic]	6	max[cm]	26.8	
mean GSD [cm]	18.5	cm	min[cm]	8.1

No. image 28

Overlap min	60	sc min	1.30514
Overlap max	71	sc mean	1.25591
		sc max	1.22089

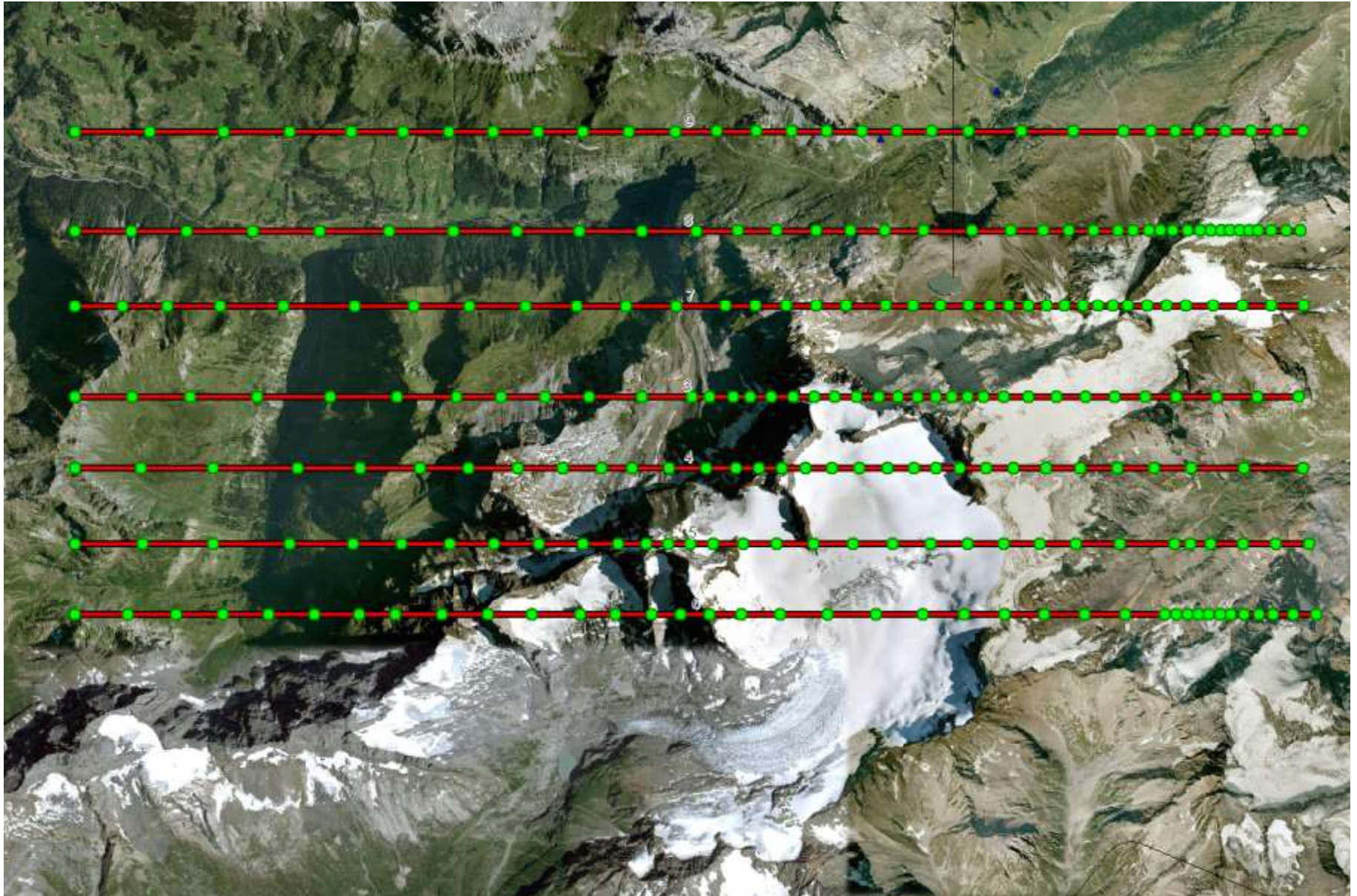
mean GSD [cm]	15.4	cm	max[cm]	18.3
		min[cm]	13.3	

15000 m

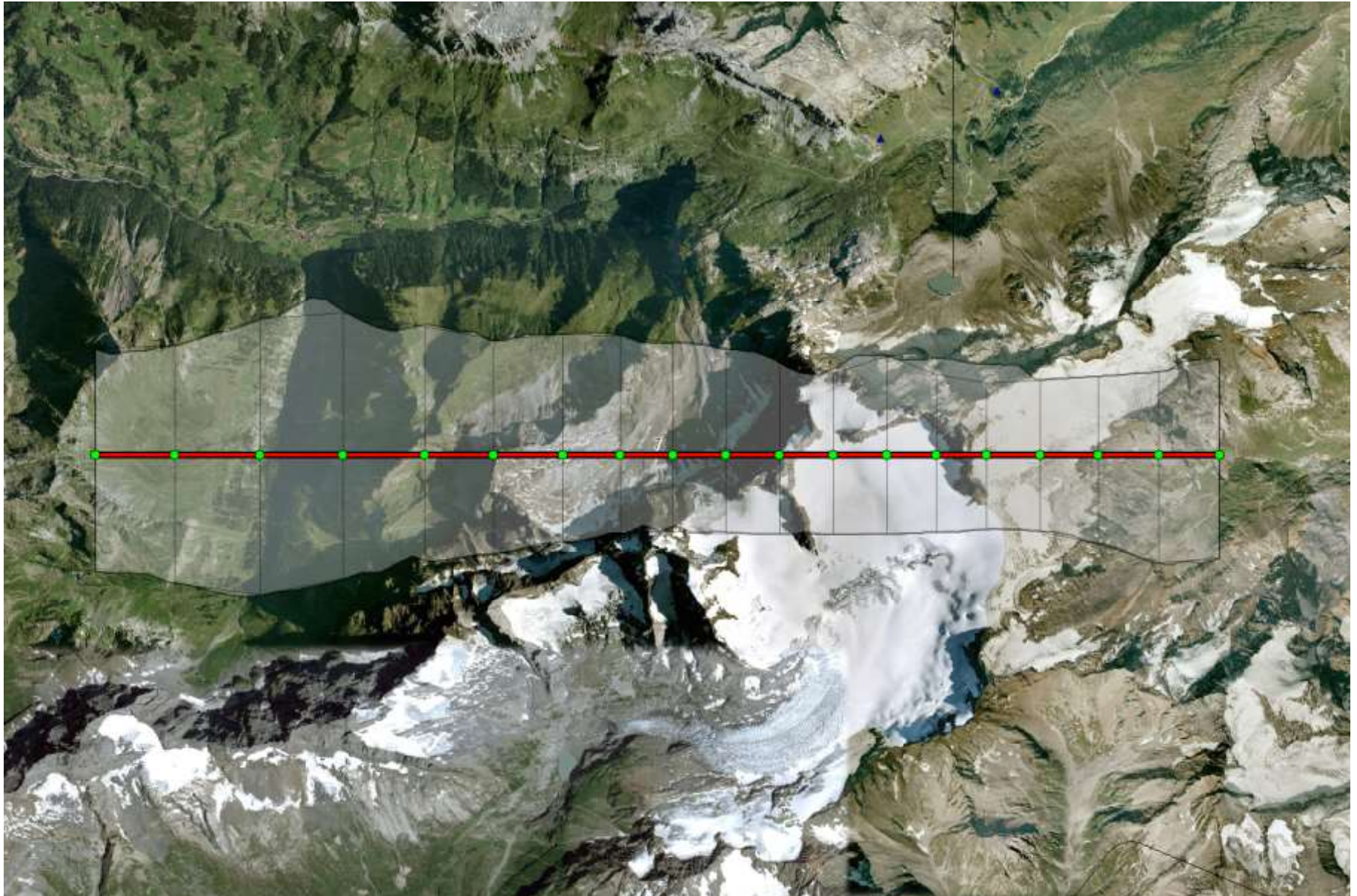
- Track.sbp
- Navigator/Points.sbp
- LineExtension.sbp
- LineLabels.sbp
- 1800mm_vf.dgn
- Karton_3L.dgn
- Image centers
 - 1200 ft
 - 1600 ft
 - 800 ft
- Flight lines
- Ground control points
- Grid.sbp
- Outlines.sbp
- Area of sidelap
- ImageCoverage.sbp
- NearModels.sbp
- Covered area by sbp
- QualityControl.sbp
- 2FD047A7-7080-4A74-9080-F285A7B54486.gp
- CH-NE_fers.sbp
- CH-SE_fers.sbp
- rslc200.sbp

x: 714208.4 y: 197991.0 z: 2388m / 7835ft 8° 56' 17.24" E 46° 55' 23.53" N 1:213769 Move the mouse over the flight line to get line and image information

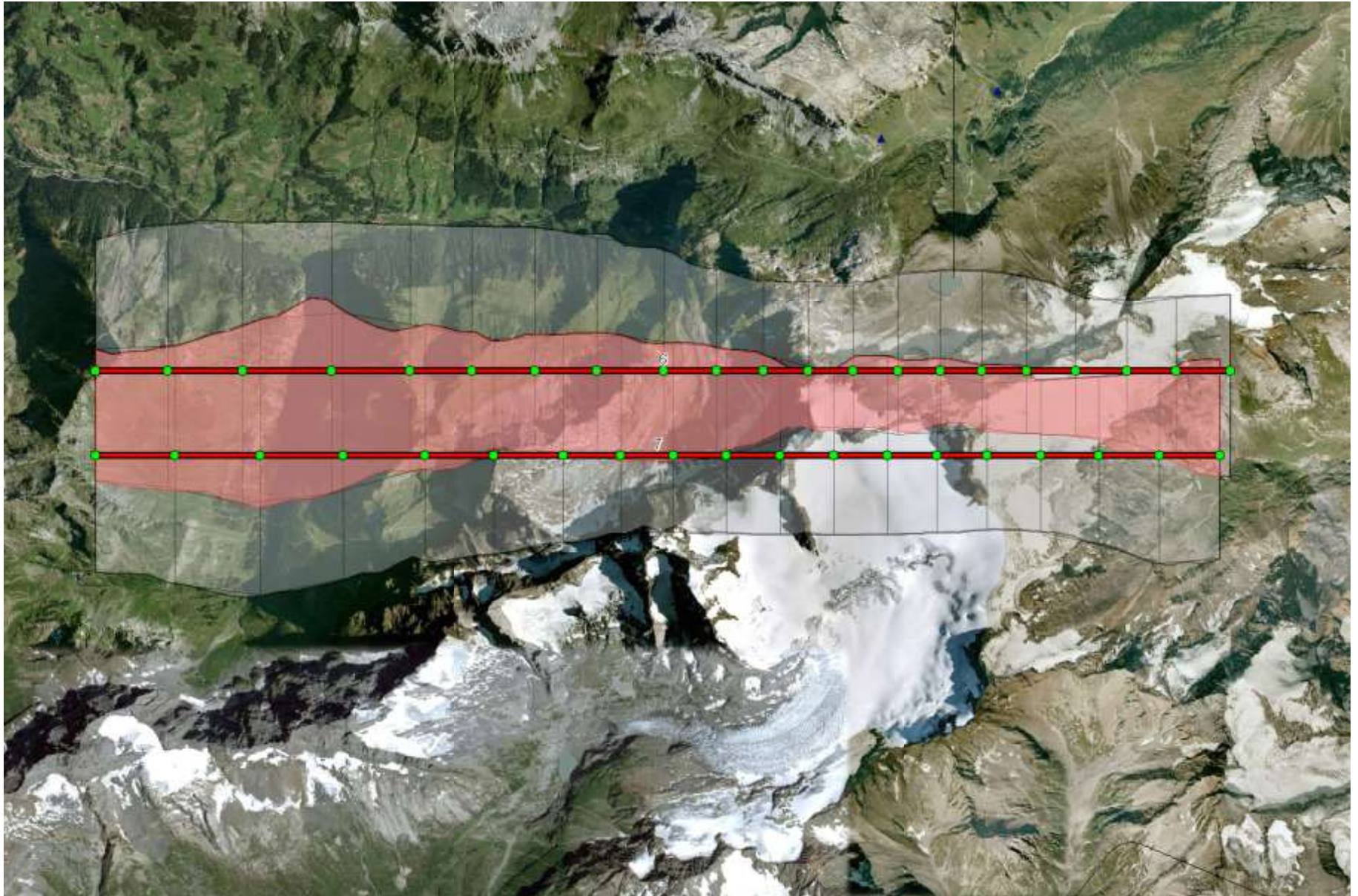
3D Flight Planning: variable distances between images



3D Flight Planning: coveread area of each flight line



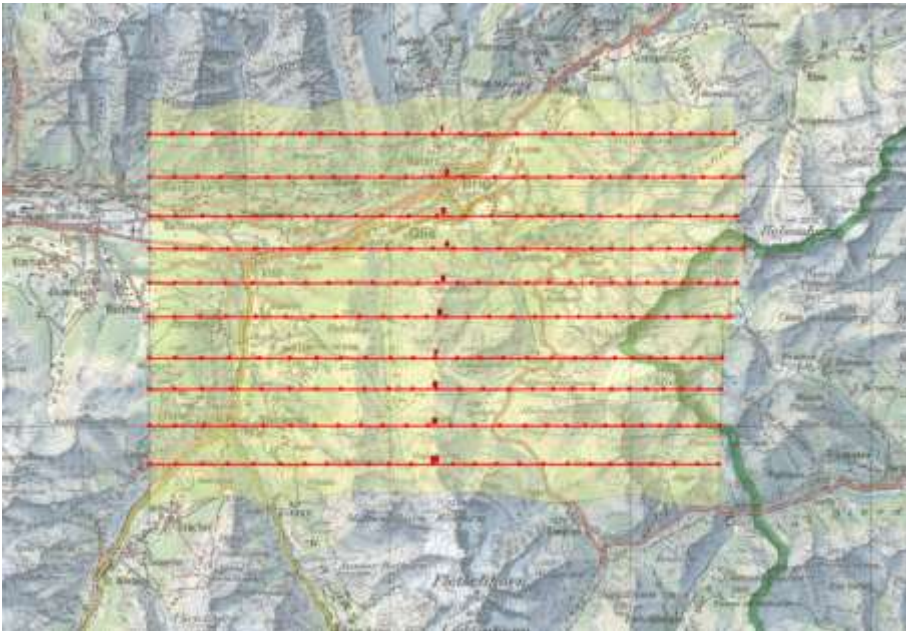
3D Flight Planning: overlap between lines



Project costs depend on flight plan (and terrain)

Flight plan version 1

Flight plan version 2



↓
cost calculation 1

↓
cost calculation 2

3D Flight Planning: covered areas

TopoFlight F:\Kt_Bern\2008027_OberlandOst\Flug\Flugplan\Flug 2009 Frühling tief\TopoFlight\topoflight.ttkgp

Project Options Language Tools Links Help

UltraCam X

automatically step lines Parameters...

Mean image scale 1:

mean Pixel size [cm]

Overlap [%]

Sidelap [%] mean/min.

Round height to next flightlevel (1000ft)

Konstruktion

Orient flight lines always to the first two quadrants

Round azimuth to the next [°]

fixed line length m

Round easting m

Round northing m

Fixed flight base m

Fixed altitude [ft] ft

mean h. above ground [m/ft] m ft

Layers

- Image centers
- LineLabels.shp
- ImageCoverage.shp
- GemFAG2001_v8.dgn
- 200506205_v8.dgn
- 2000mUM_def_v8.dgn
- Grid.shp
- NeatModels.shp
- Flight lines
- Ground control points
- Area of sidelap
- Covered area by strip

10000 m

x: 653238.8 y: 150135.0 z: 3039m / 9970ft 8° 7' 55.89" E 46° 30' 1.52" N 1:175107 Left click to define start of line

3D Flight Planning: covered areas – neat models

TopoFlight F:\Kt_Bern\2008027_OberlandOst\Flug\Flugplan\Flug 2009 Frühling tief\TopoFlight\topoflight.ttkgp

Project Options Language Tools Links Help

UltraCam X

- automatically step lines Parameters...
- Mean image scale 1:
- mean Pixel size [cm]
- Overlap [%]
- Sidelap [%] mean/min.
- Round height to next flightlevel (1000ft)

Konstruktion

- Orient flight lines always to the first two quadrants
- Round azimuth to the next [°]
- fixed line length m
- Round easting m
- Round northing m
- Fixed flight base m
- Fixed altitude [ft] ft
- mean h. above ground [m/ft] m ft

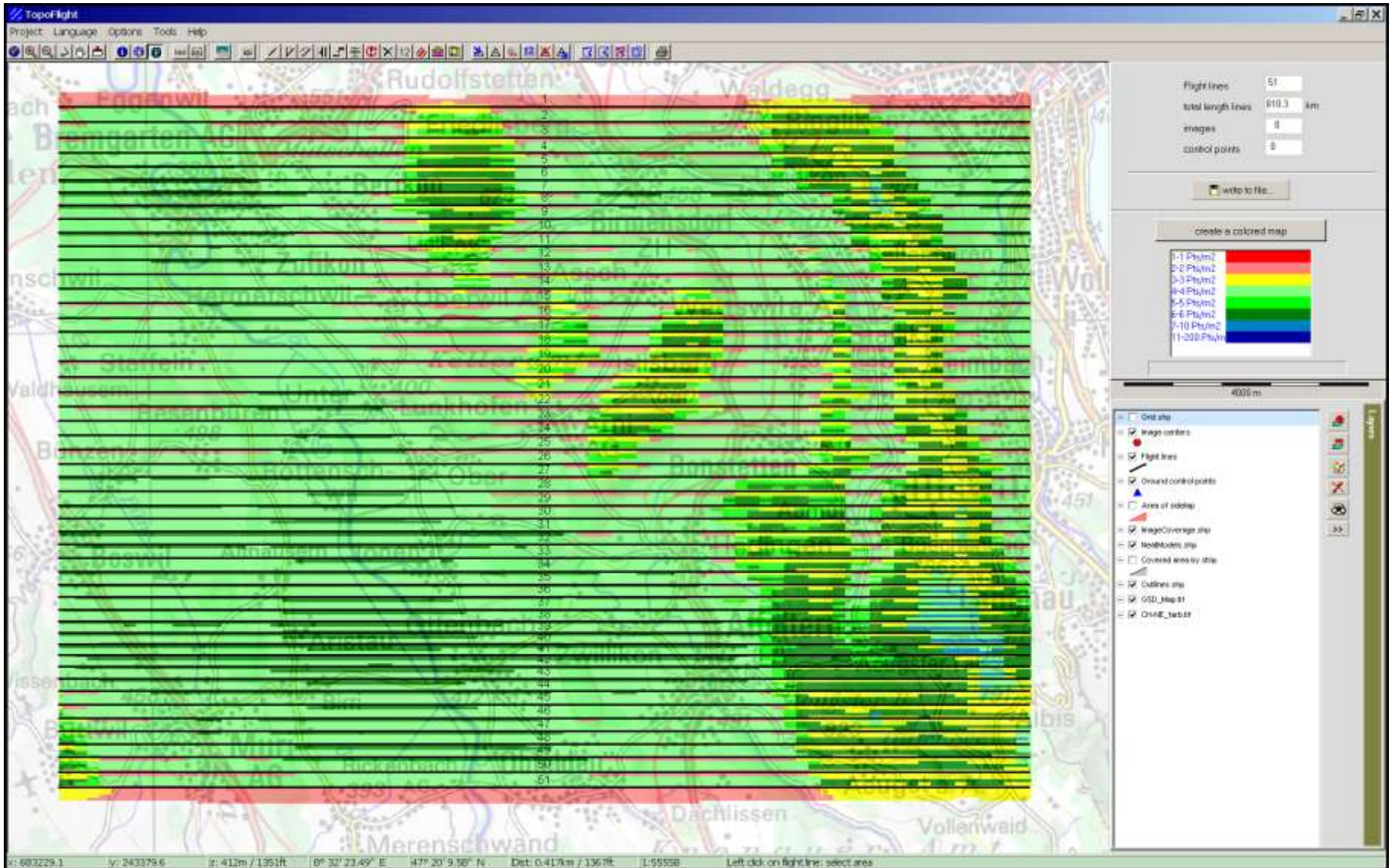
10000 m

Layers

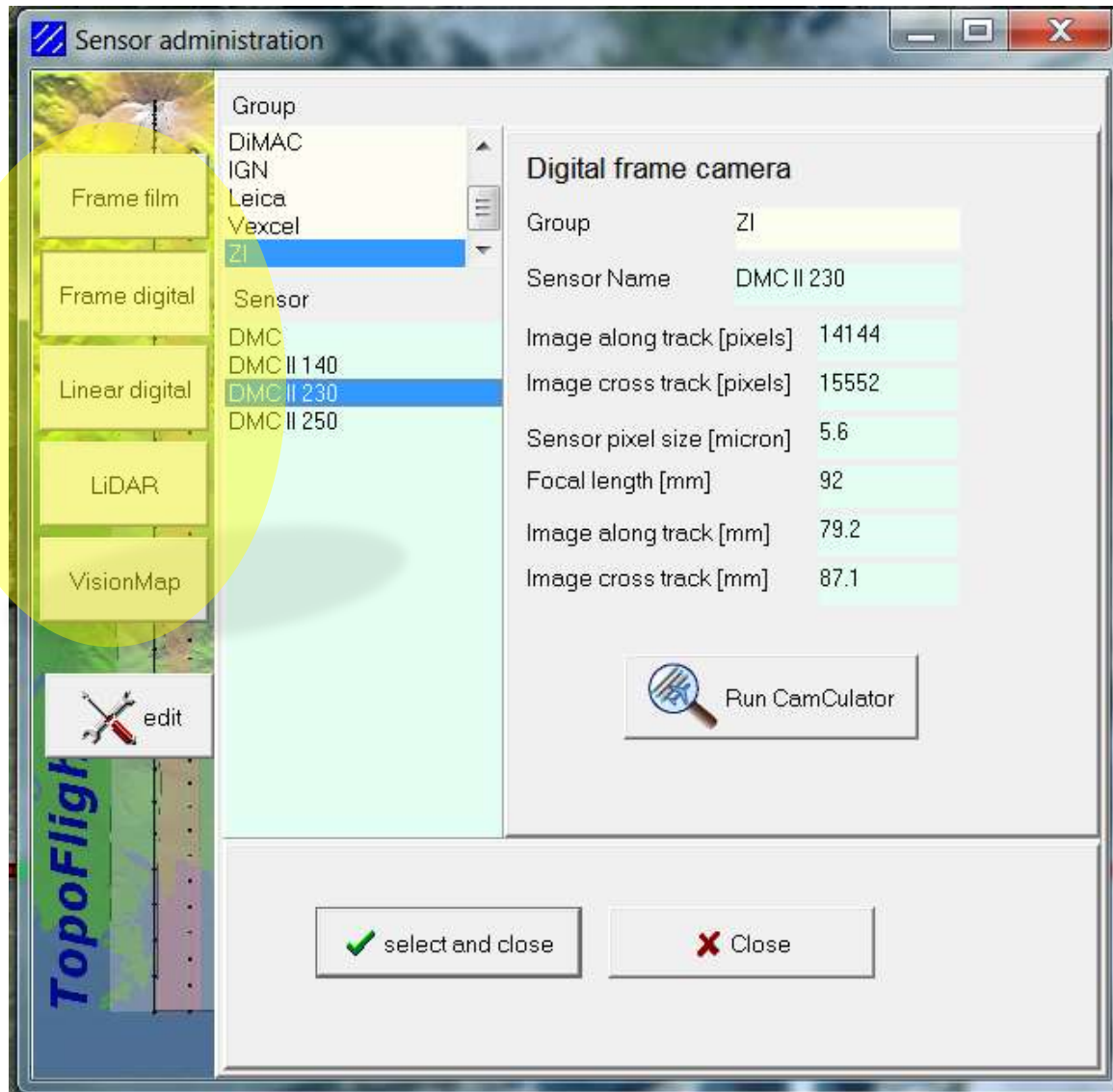
- Image centers
- LineLabels.shp
- ImageCoverage.shp
- GemFAG2001_v8.dgn
- 200506205_v8.dgn
- 2000muM_def_v8.dgn
- Grid.shp
- NeatModels.shp
- Flight lines
- Ground control points
- Area of sidelap
- Covered area by strip

x: 626181.8 y: 181500.7 z: 961m / 3151ft 7° 46' 53.39" E 46° 47' 2.99" N 1:175107 Left click to define start of line

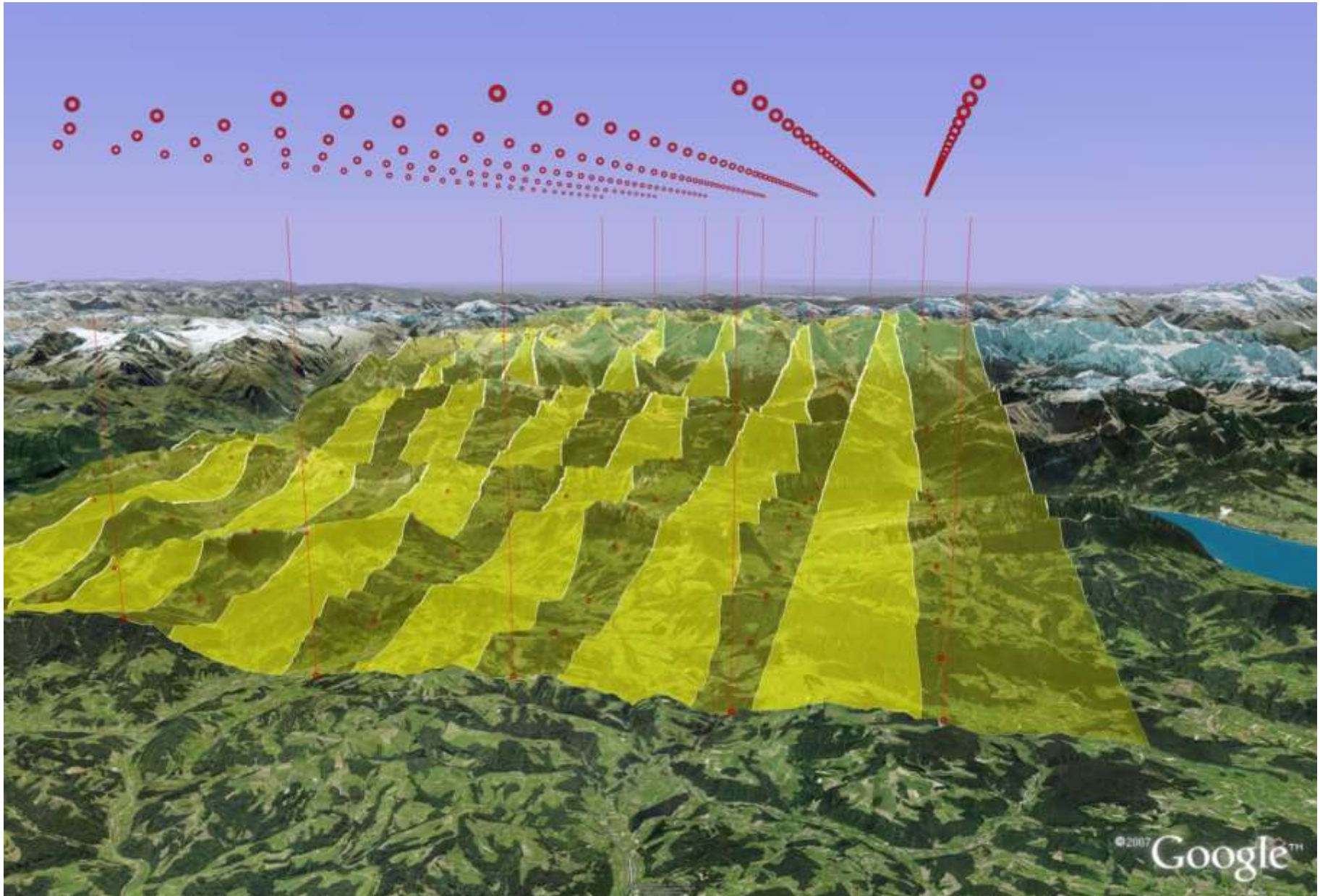
3D LiDAR Flight Planning: LiDAR planning and density map



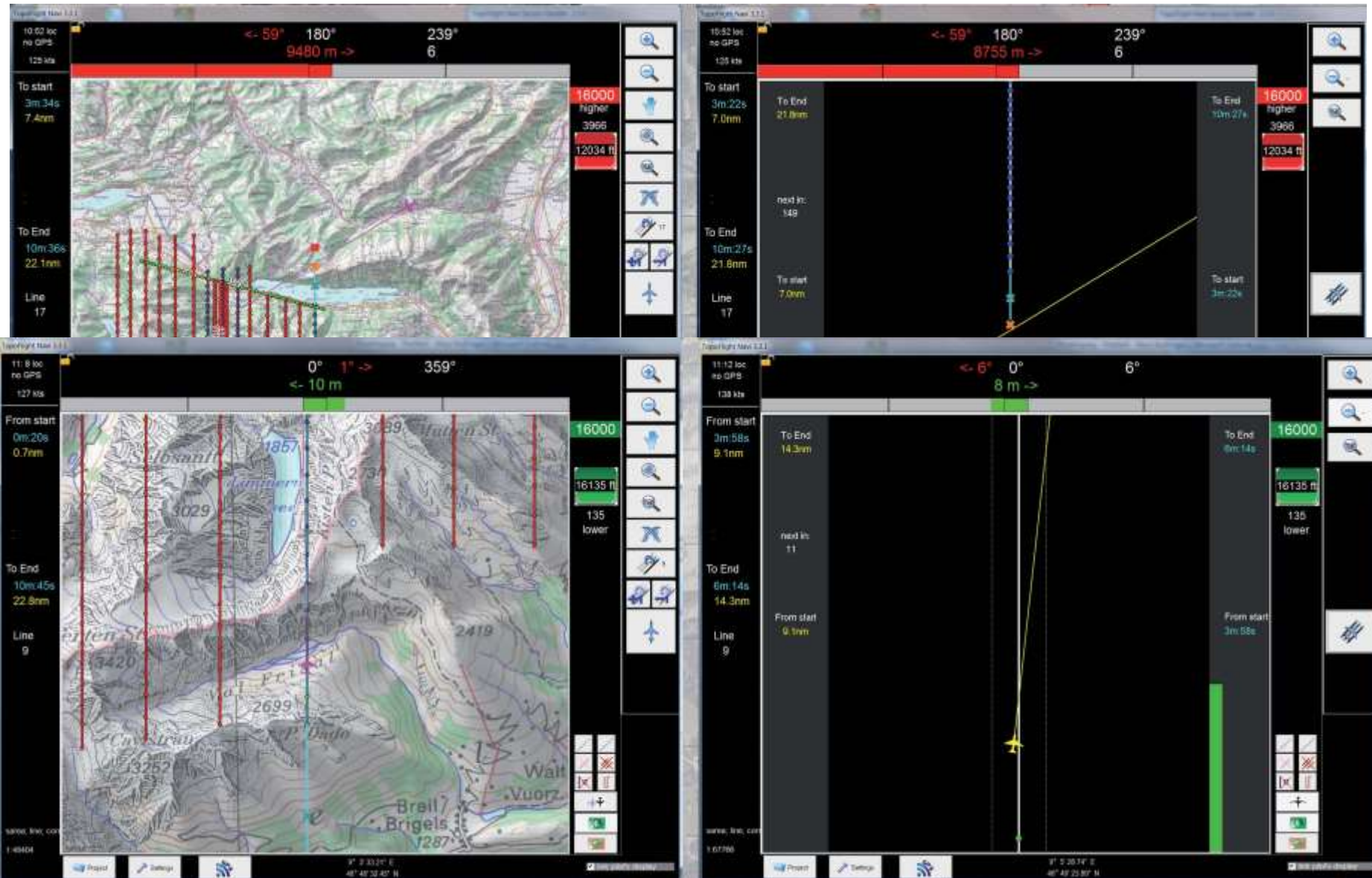
3D Flight Planning: one software – many sensors



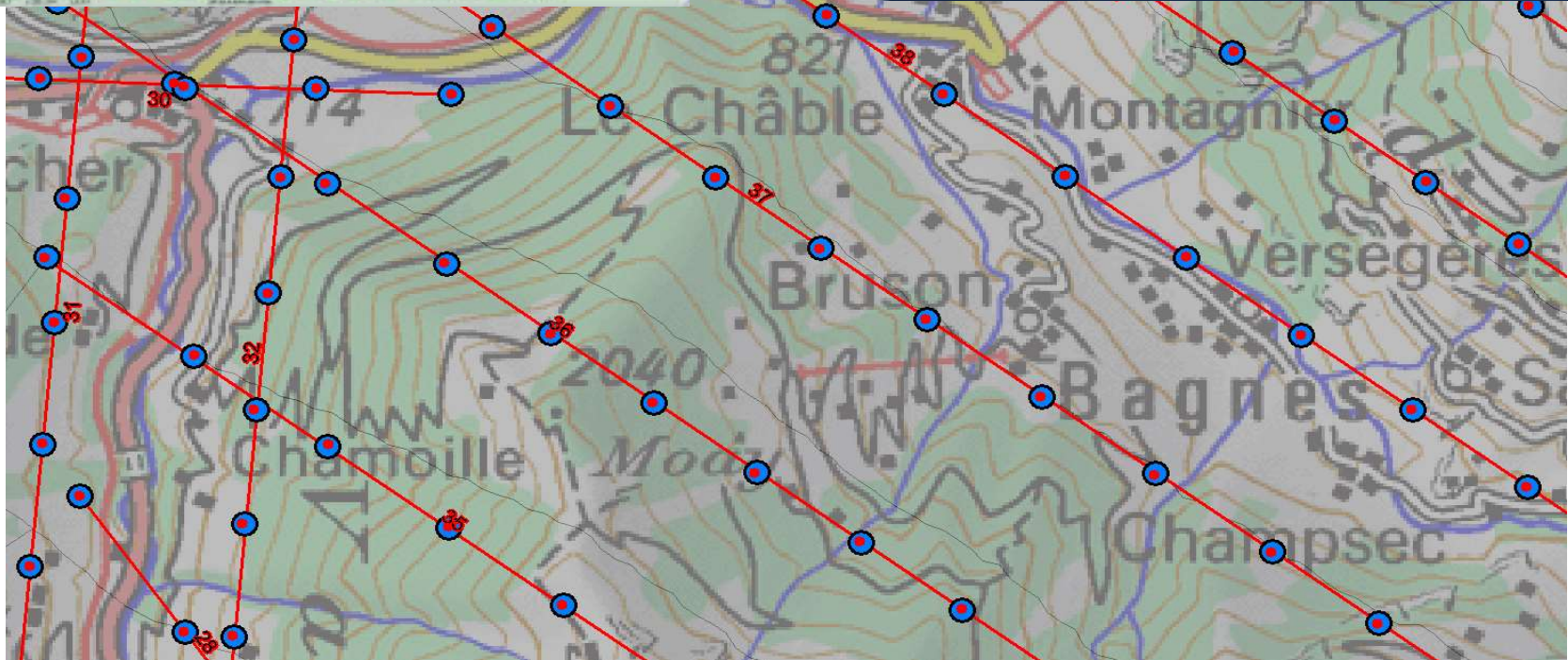
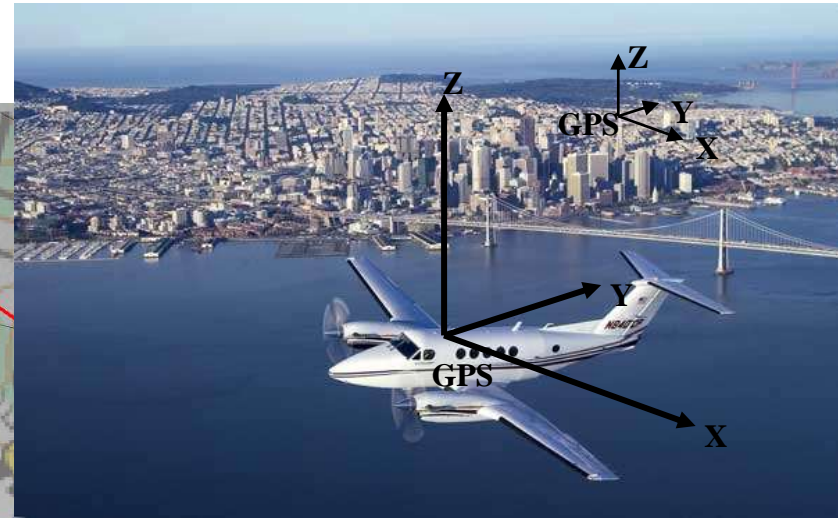
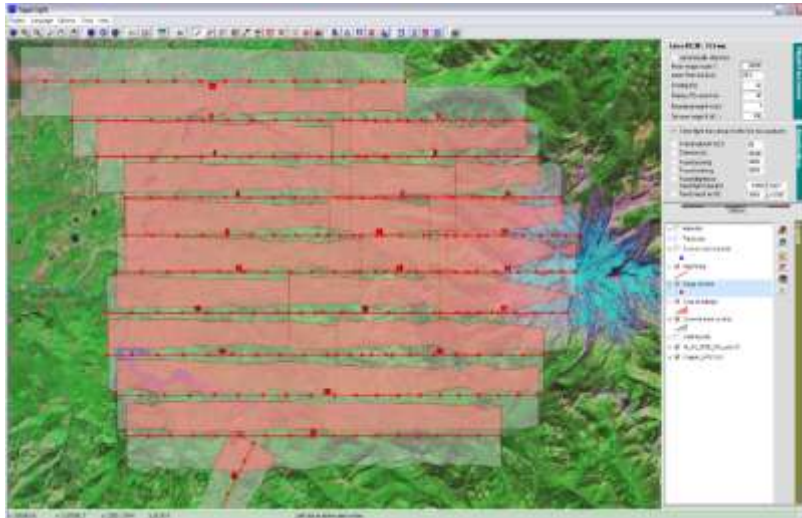
3D Flight Planning: check, publish with Google Earth



TopoFlight Navigator: executing the flight



Quality control: check flown against planned



TopoFlight: world wide customers

