EuroSDR project

Benchmark on Image Matching

Christian Ginzler

Swiss Federal Institute for
Forest, Snow and Landscape Research
CH-8903 Birmensdorf

Who we are:

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Federal Department of Home Affairs FDHA

ETH-Domain

Federal Institutes of Technology and Research Institutes

Strategic management: ETH Board

EPF Lausanne

ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

ETH Zürich

Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

EMPA
Materials Science & Technology

eawag
aquatic research

PAUL SCHERRER INSTITUT
PSI

WSL

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What we do:

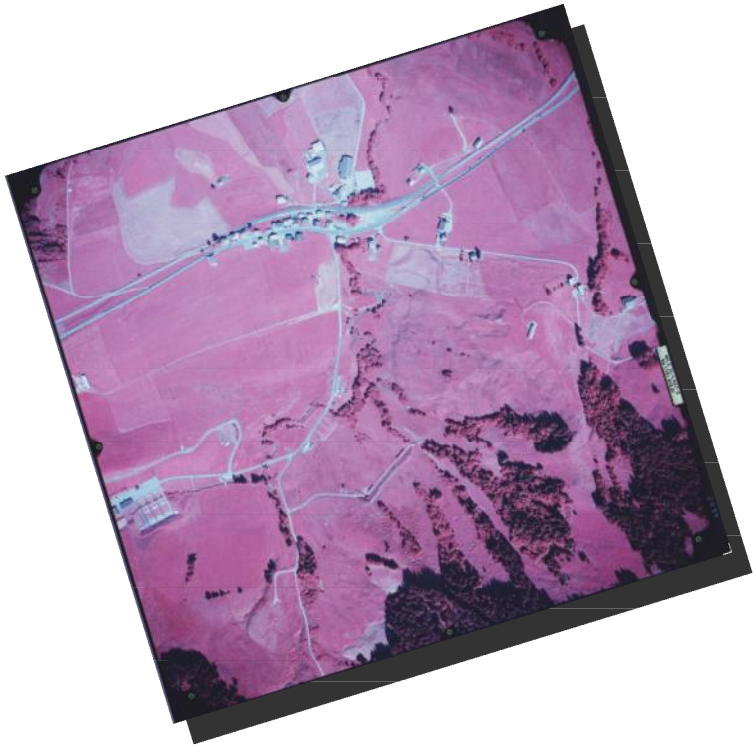


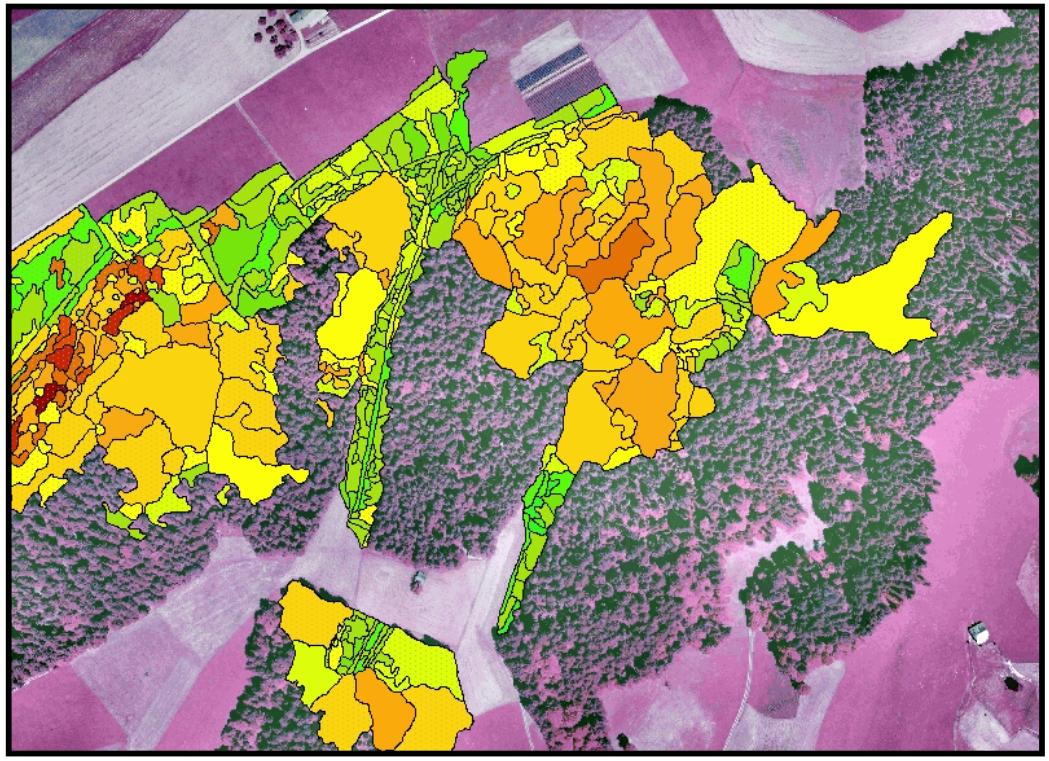


- Landscape research
- Forest ecology and forest management
- Natural hazards and integral risk management
- Snow, ice, avalanches and permafrost

Remote Sensing Group

Image matching since ~1995: e.g. Wetland monitoring

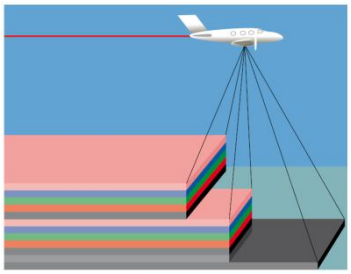




Scanned RC30 images

ADS80 from swisstopo

Since 2008: Countrywide image matching



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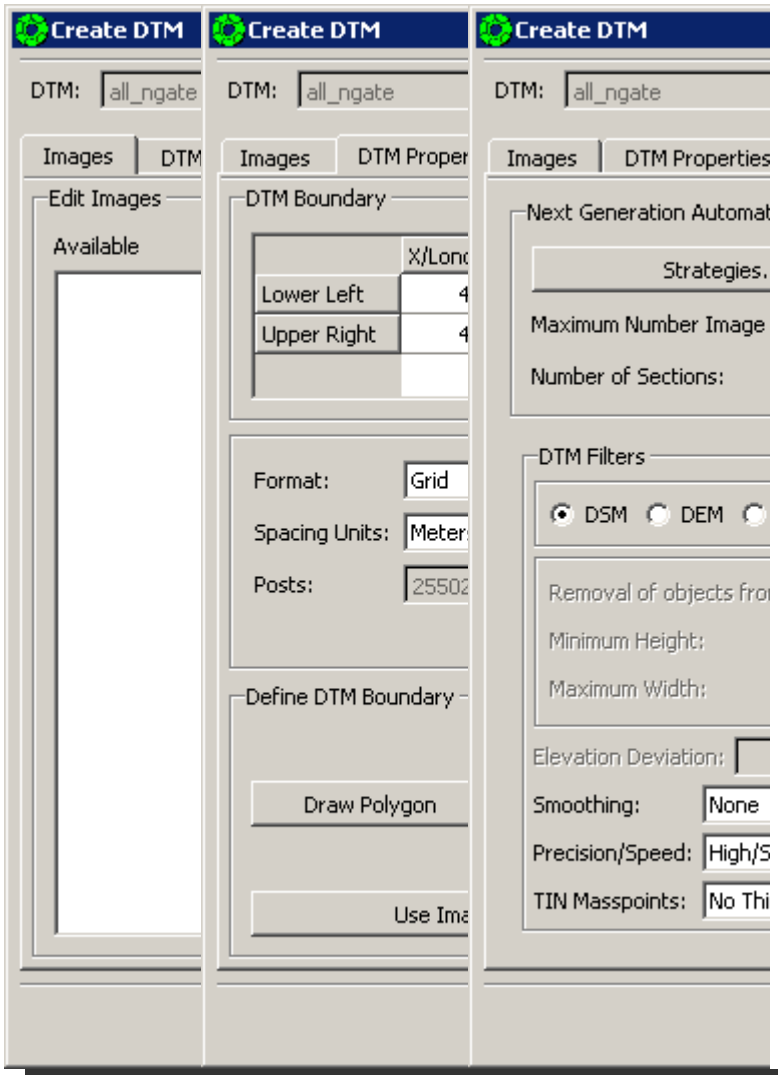
IT Environment for the matching:

Intel Xeon CPU X5570	2.93 GHz
Memory:	24 GB
Used CPUs:	1
HD:	Samsung SSD
Harddisk:	HP Blades BL465 MSA2012i (7’200)
Network:	10 Gb / 1 Gb
Software:	SocetSet 5.6 (BAE Systems)

SocetSet 5.6 (NGATE):




```
-#  5.  Signal power cutoff value.
-#      In desert areas, this value should be small from 2
-#      In other areas, the suggested values are from 3 to
-#      still points on water bodies, you need to increase
-#      If your image is of high radiometric quality, you c
-#      If your image is noisy, you should use larger value
-#
-#  6.  Large signal power cutoff value.
-#  7.  Image correlation back matching cutoff value.
-#  8.  Edge matching back matching cutoff value.
-#  9.  X parallax difference cutoff value.
-#         Suggested values: 0.5 - 1.0.
-#         1.0 is for extremely steep terrain or urban area
-#         and buildings.
-#         It is the ratio of the difference of x parallax
-#         the difference of samples.
-#      In other words, it is similar to the HIGH_SLOPE det
-#      uses the slope limit in degree (0-89).
-#  10. Minimum correlation coefficient difference.
-#      For noise images or images not well triangulated, w
-#      value at the last two passes. Or if there are blund
-#      this value to remove some of the blunders. Suggeste
-#         0.155 to 0.25
-#  11. Maximum percent edge value difference / 100.
-#  12. Signal power difference cutoff value.
-#  13. Second peak difference cutoff.
-#  14. Rough terrain lower FOM cutoff value.
-#  15. Invalid precision distance factor. The default valu
-#      To assign more invalid precision 32767 to posts whi
-#      you need to decrease this number.
-#
-#                 1     2     3     4     5     6      7    8    9

DOUBLE_STRAT0    0.30  0.20  0.70  0.80  10.0  54.0   3.0  3.0  1.0
DOUBLE_STRAT1    0.30  0.20  0.70  0.80  8.0   54.0   3.0  3.0  1.0
DOUBLE_STRAT2    0.30  0.20  0.70  0.80  6.0   52.0   3.0  3.0  1.0
DOUBLE_STRAT3    0.30  0.20  0.70  0.75  4.0   60.0   3.0  3.0  5.0
DOUBLE_STRAT4    0.30  0.20  0.70  0.75  3.0   68.0   3.0  3.0  10.0
DOUBLE_STRAT5    0.30  0.20  0.70  0.75  2.5   96.0   3.0  3.0  20.0
DOUBLE_STRAT6    0.30  0.20  0.70  0.75  2.0   192.0  3.0  3.0  30.0
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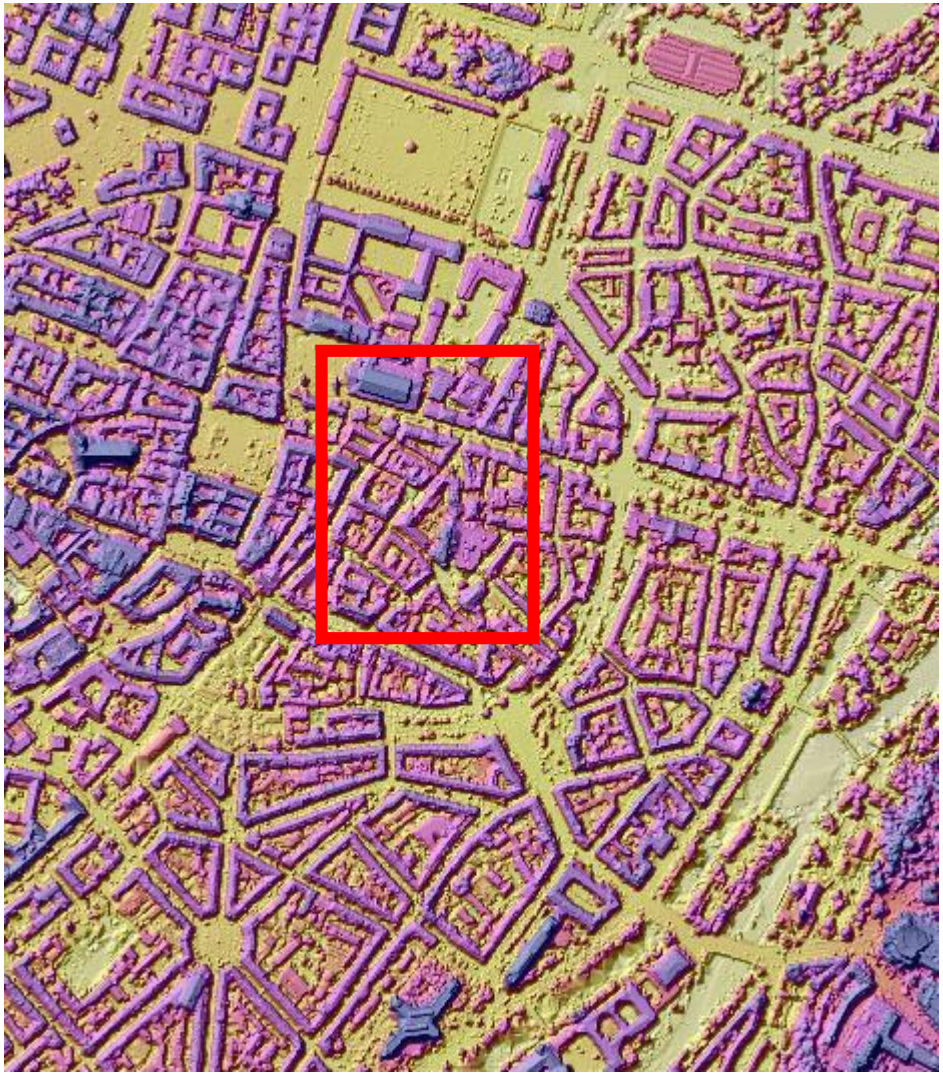
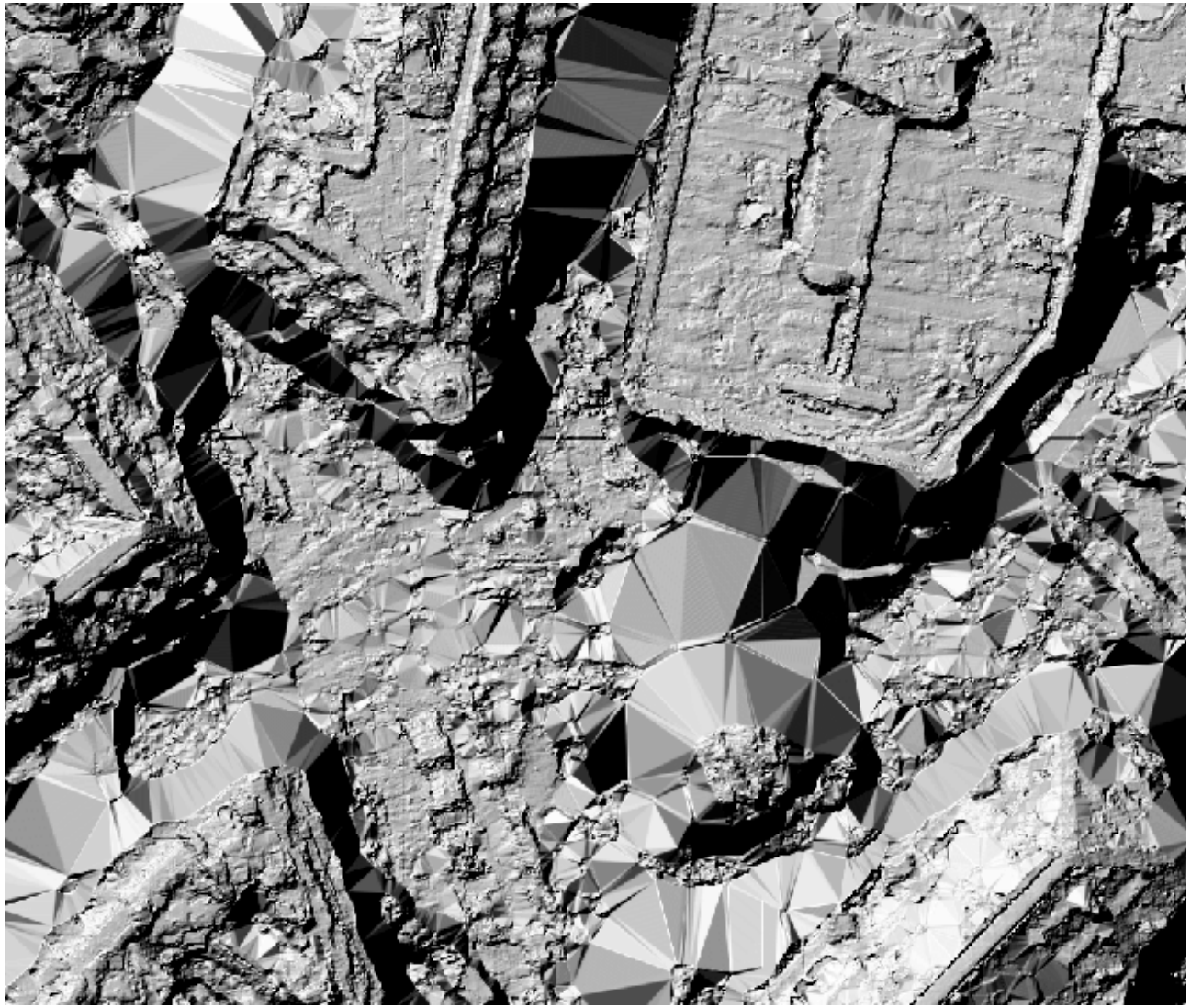
SocetSet 5.6 (NGATE): München (25h)



SocetSet 5.6 (NGATE): München / 1 Image pair



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SocetSet 5.6 (NGATE): München / >1 Image pair

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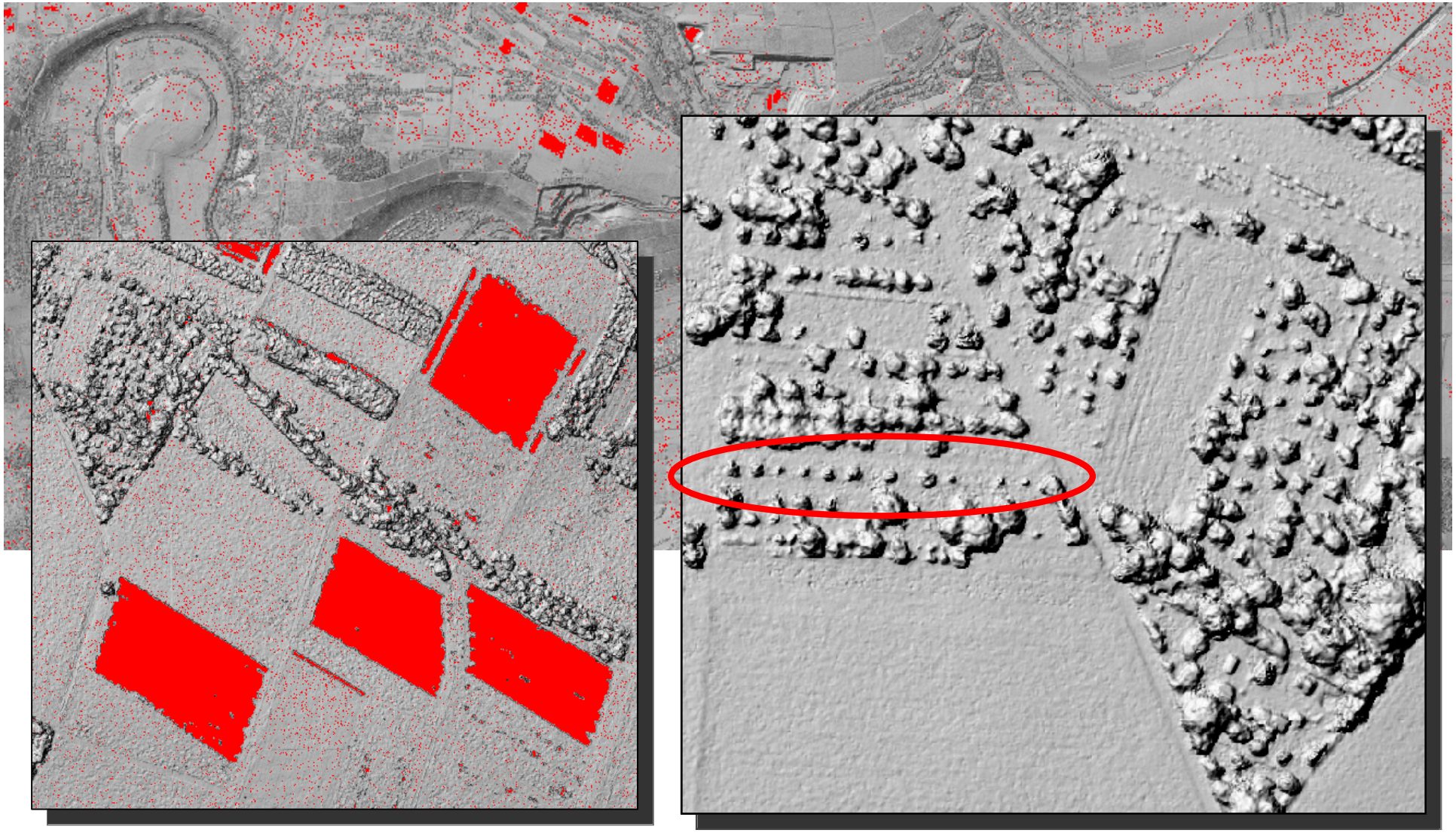
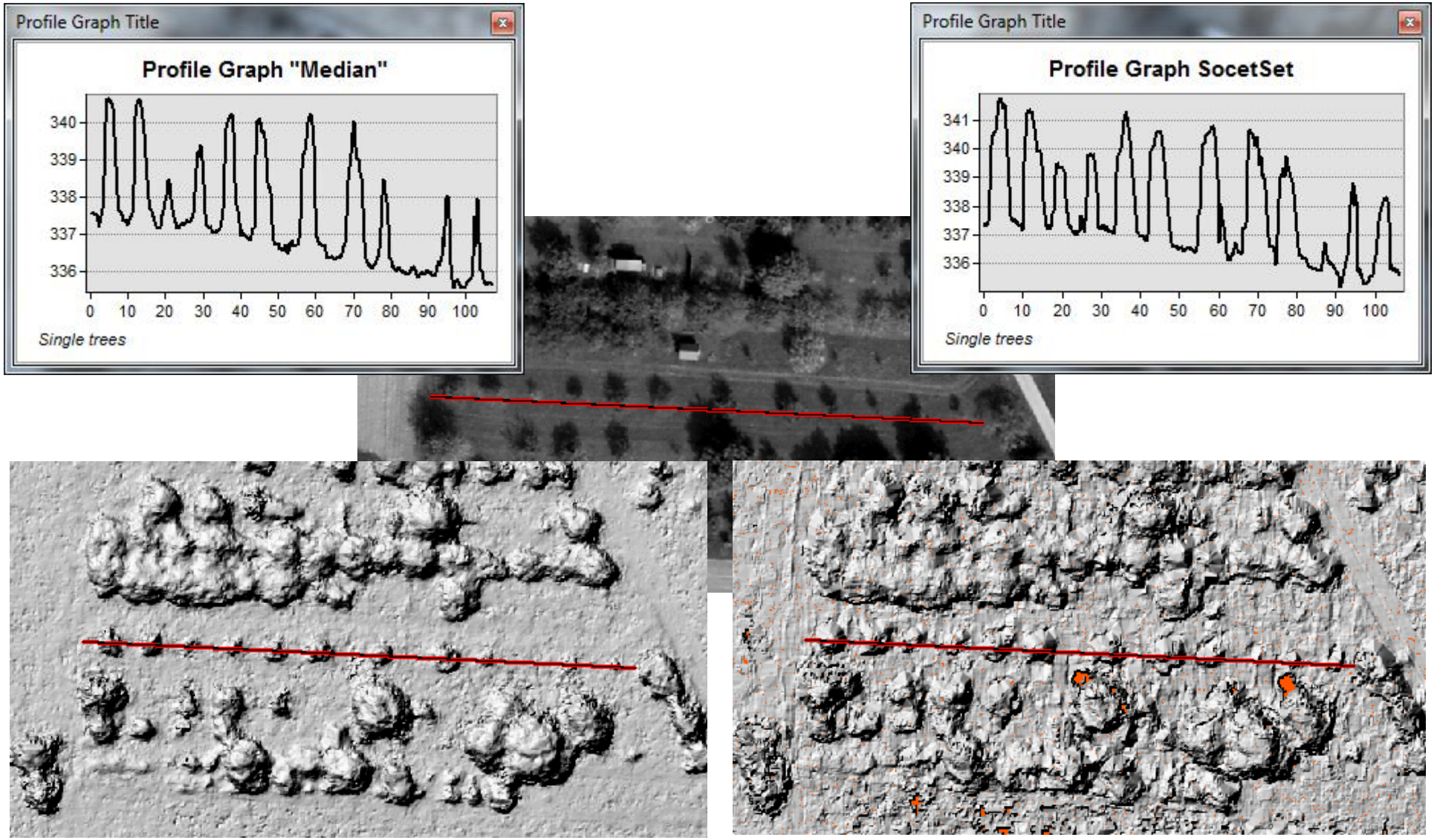
SocetSet 5.6 (NGATE): Vaihingen / Enz (36h)



SocetSet 5.6 (NGATE): Vaihingen / Enz (36h)



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Thank you

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