GEOSNAV

GeoSNaV Laboratory
Geodesy and Satellite Navigation Laboratory
University of Trieste, Italy

DIA DIPARTIMENTO DI INGEGNERIA E ARCHITETTURA
UNIVERSITA' DI TRIESTE

Metodologie spaziali innovative 3D per la valorizzazione di siti e itinerari archeologici, storici e culturali

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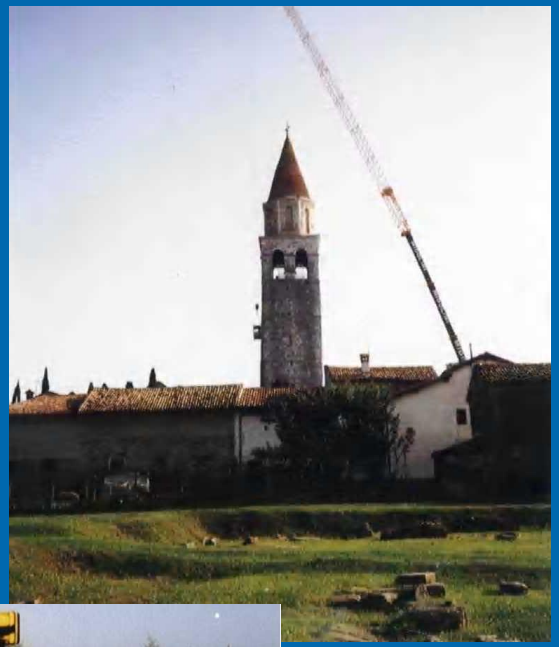
Riunione - Fondazione Aquileia

Aquileia, 17 Febbraio 2017

Applicazioni GIS in campo archeologico - Aquileia



- Georeferenziazione GNSS
- Collegamento alle reti rilevate con metodologie classiche
- Cooperazione a Progetti internazionali

  P.I.C.S. (M.B.Carre)

Research Activities

- Digital Photogrammetry surveys
- Laser Scanner surveys
- GPS Networks – link with classical surveys
- Kinematic GPS application to aerial, maritime and terrestrial navigation
- GIS/WebGIS Applications

  i.e. Roman Aquileia harbour Fluvial structures (PICS Project) GIS

GIS e WebGIS applications

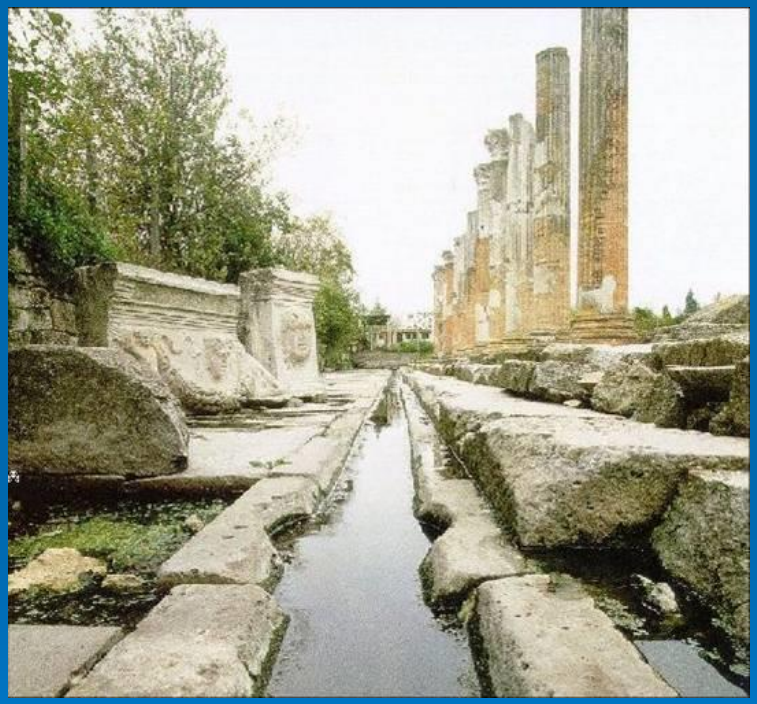
Roman Aquileia Harbour Fluvial structures

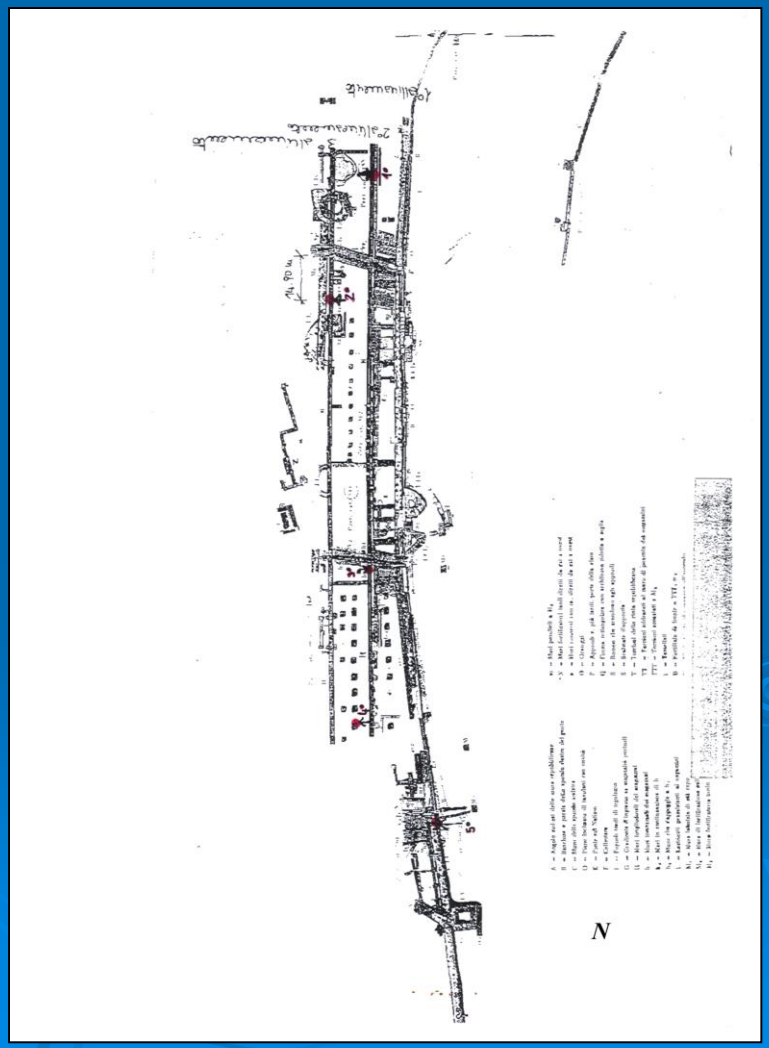
Implementation of a Geographical Information System

PICS 3064 CNRS Project
University of Trieste,
SBAS FVG, Ecole Francaise

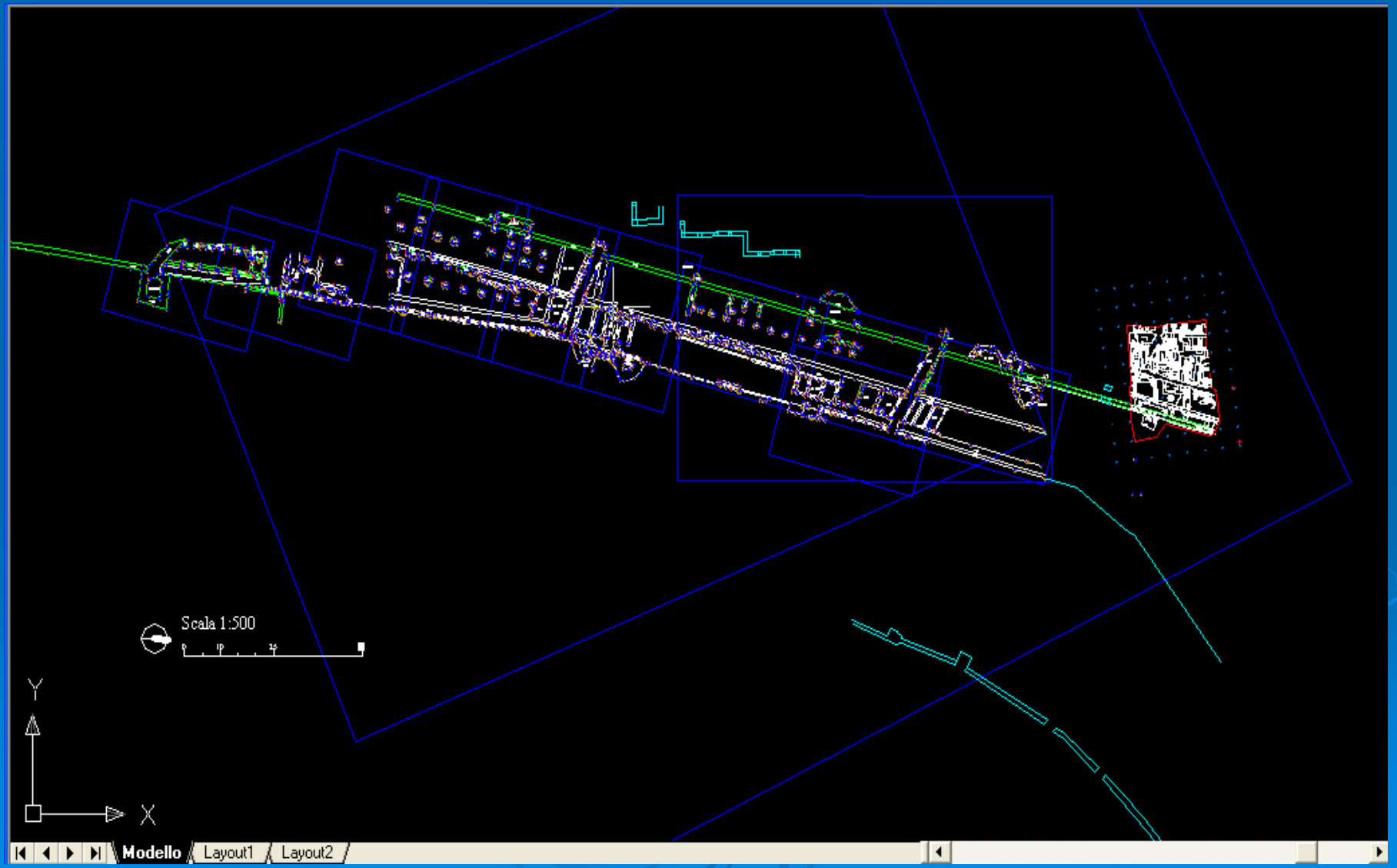
The Aquileia Fluvial Harbour

Brusin surveys



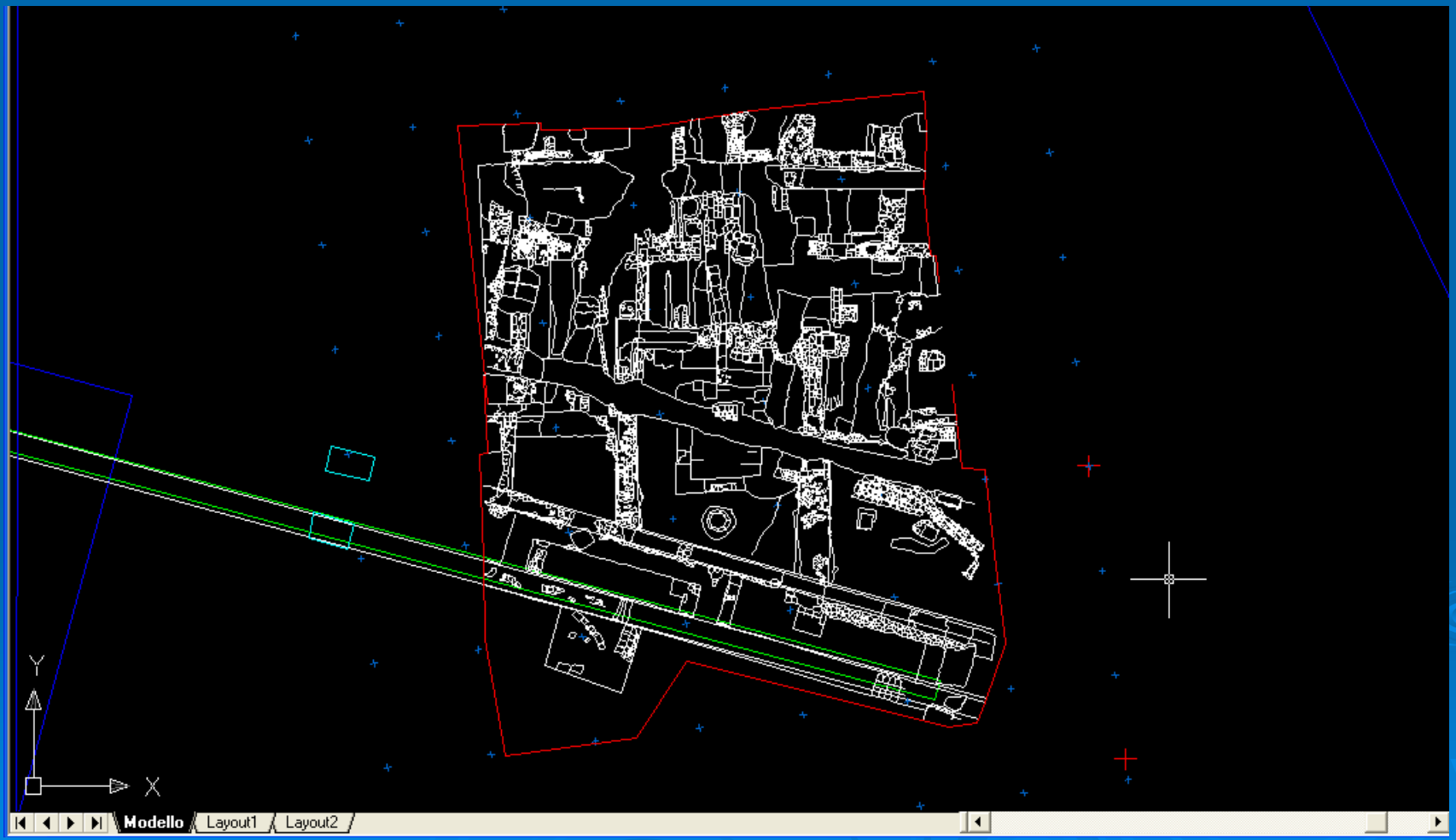


Georeferenziazione dei rilievi archeologici delle strutture fluviali del porto di Aquileia

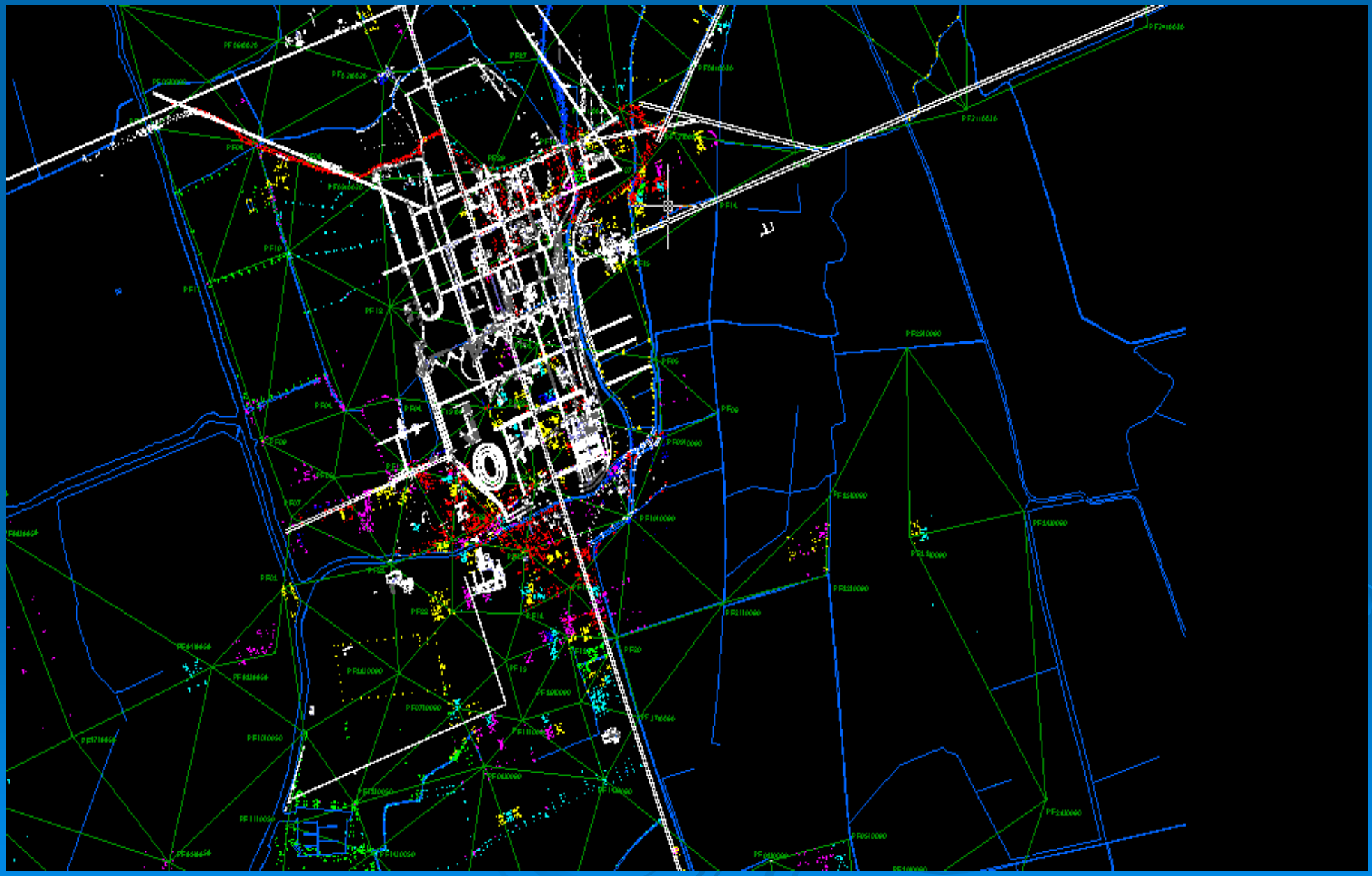


Rilievo del porto fluviale

M.B. Carre CNRS, Aix en Provence, France



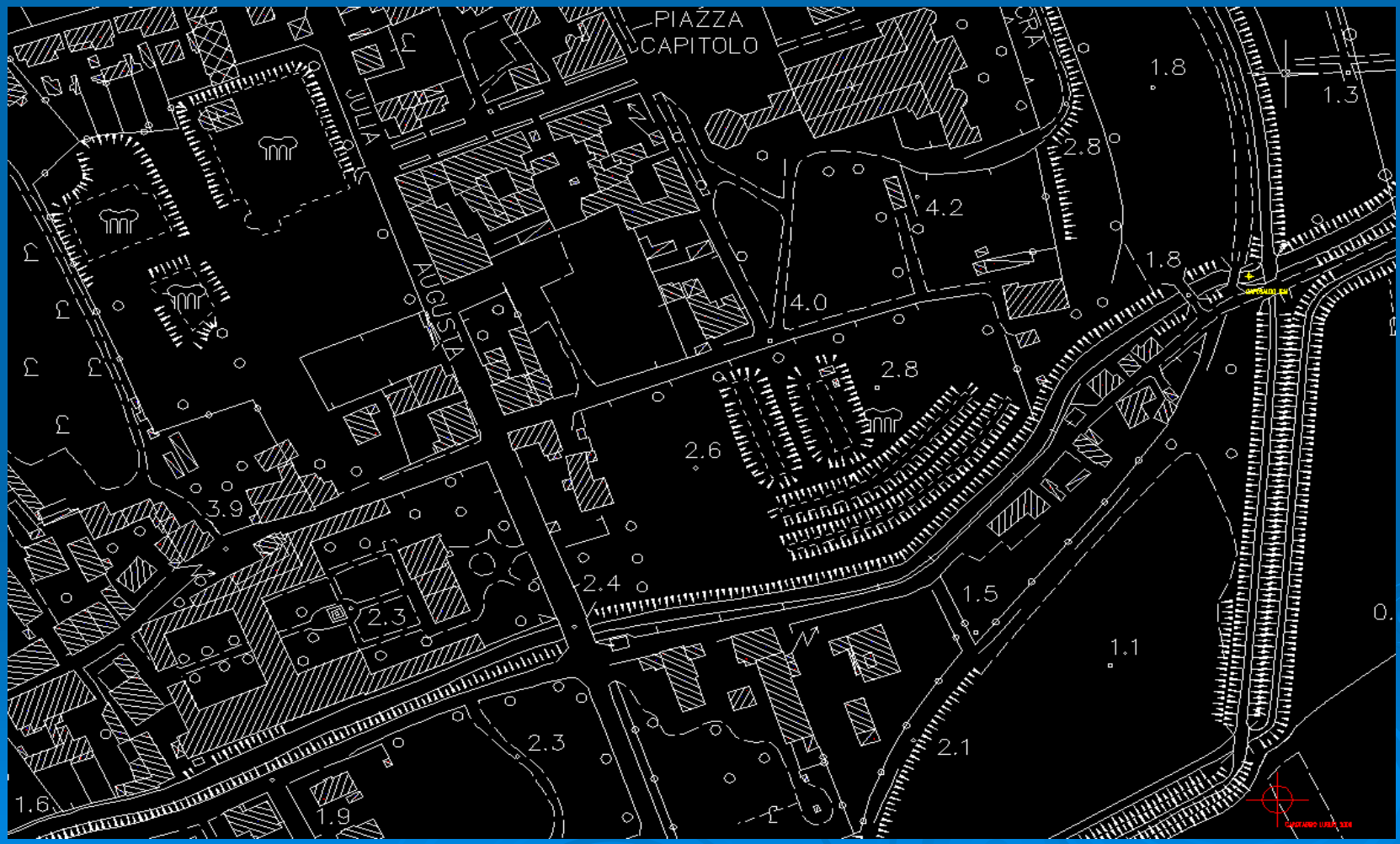
Importazione rilievi – reti classiche/catastali



Drilling sites - Monastero

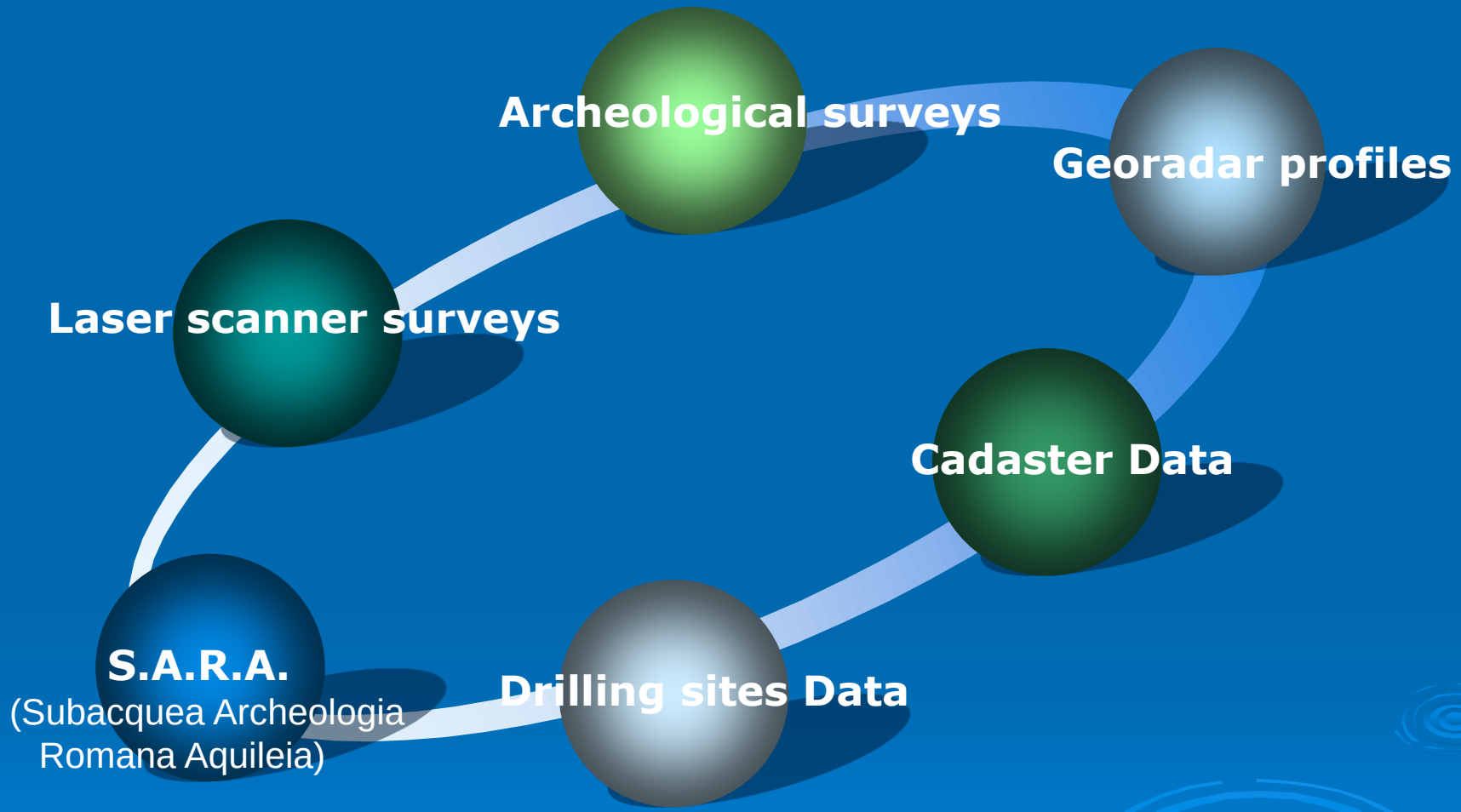
Monastero - GPS georeferencing

Other Drilling sites



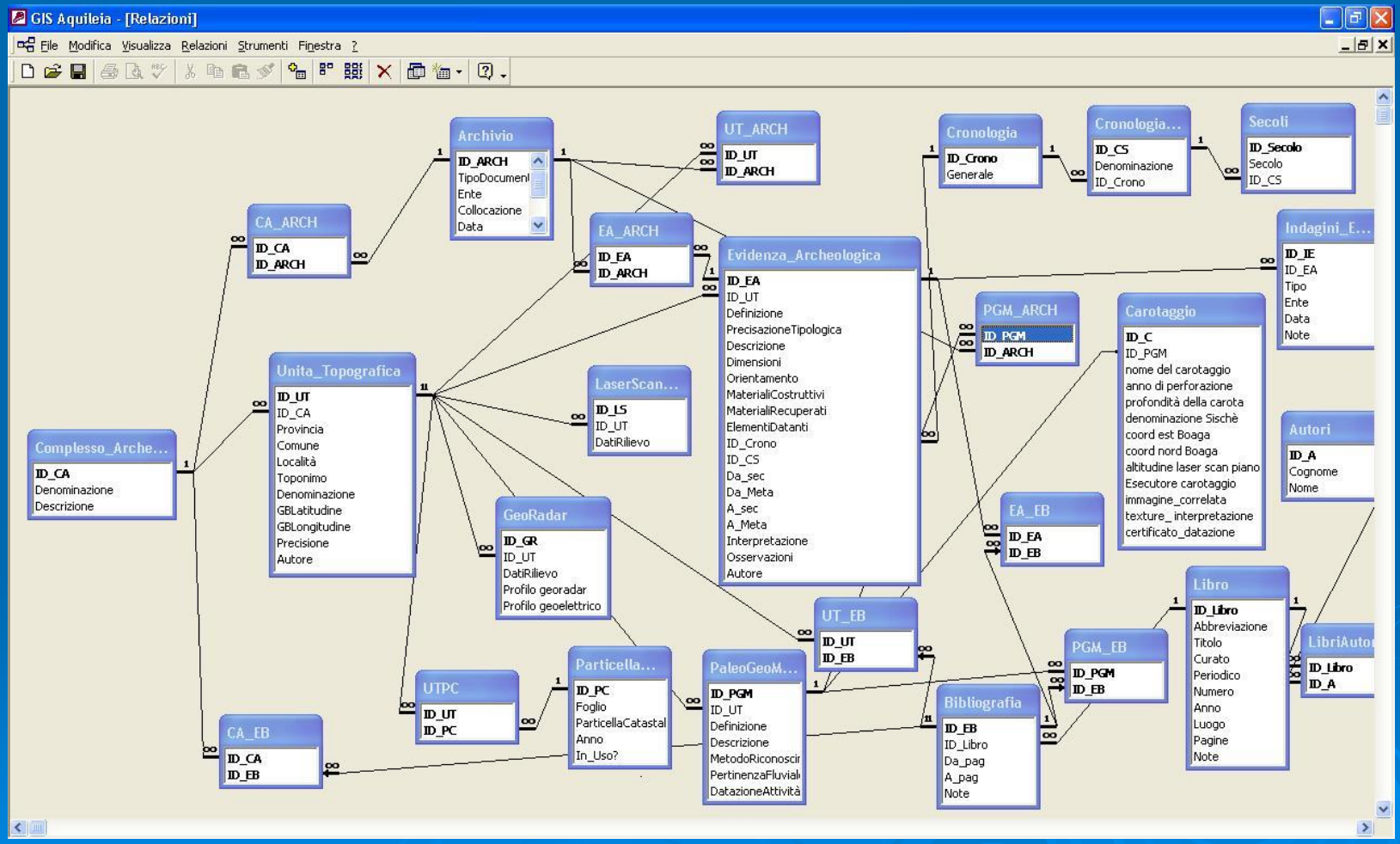
IGM95 Network vertex - Aquileia

GIS – strutture fluviali del porto di Aquileia



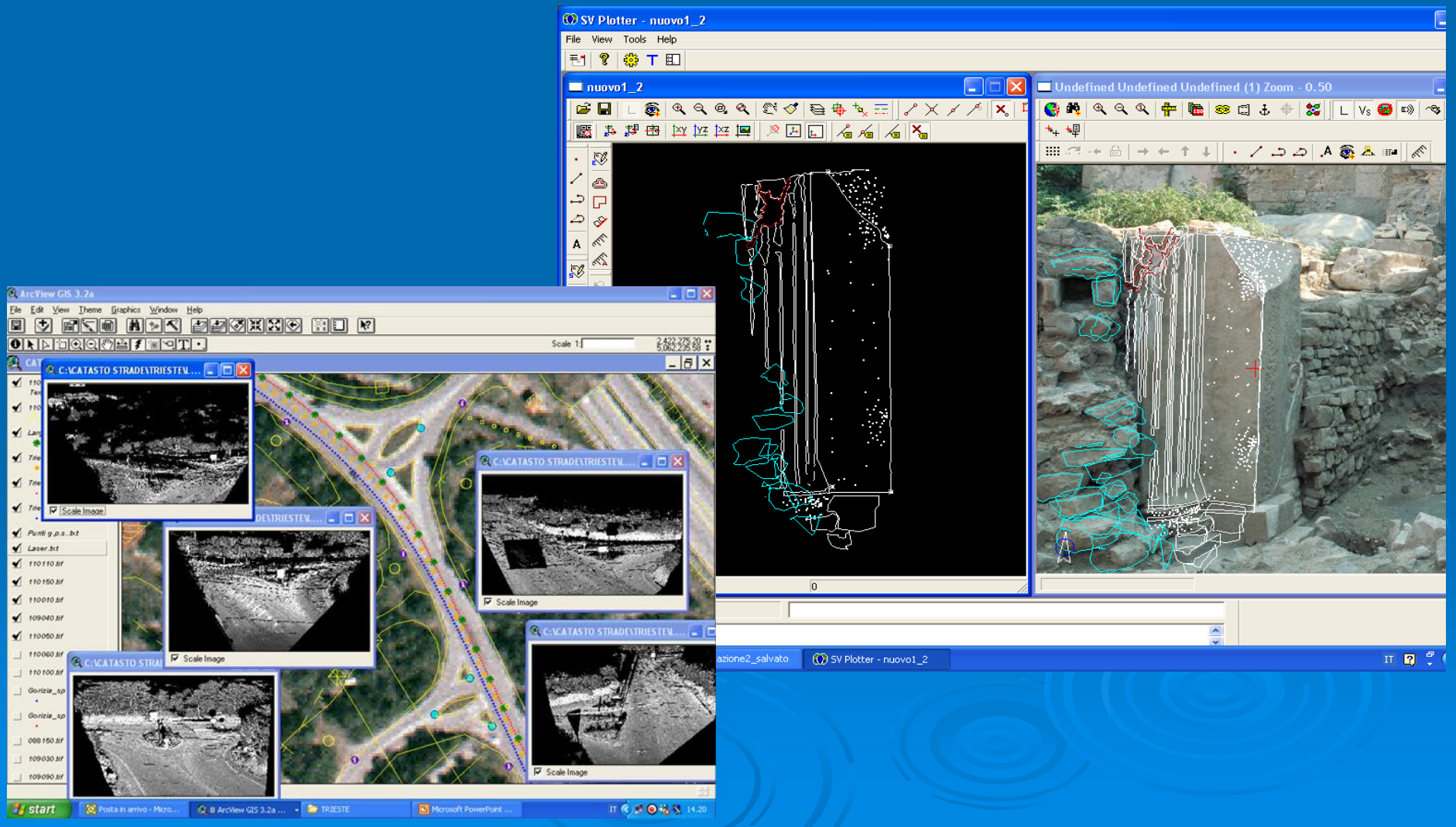
Data

Implementazione applicativo GIS - struttura del DataBase

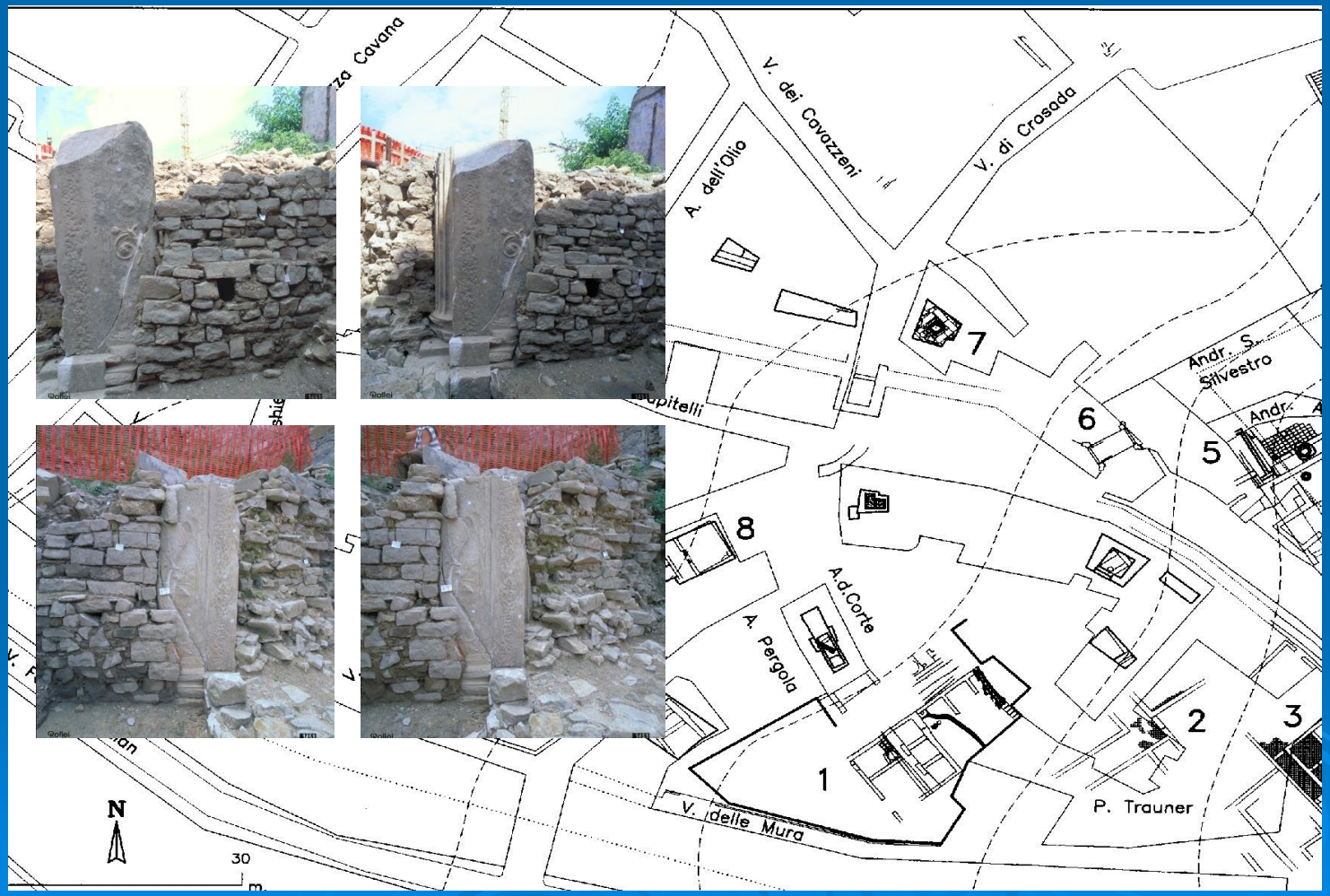


Ing. Alessia Cociancich – Tesi Laurea Triennale Ing. Informatica

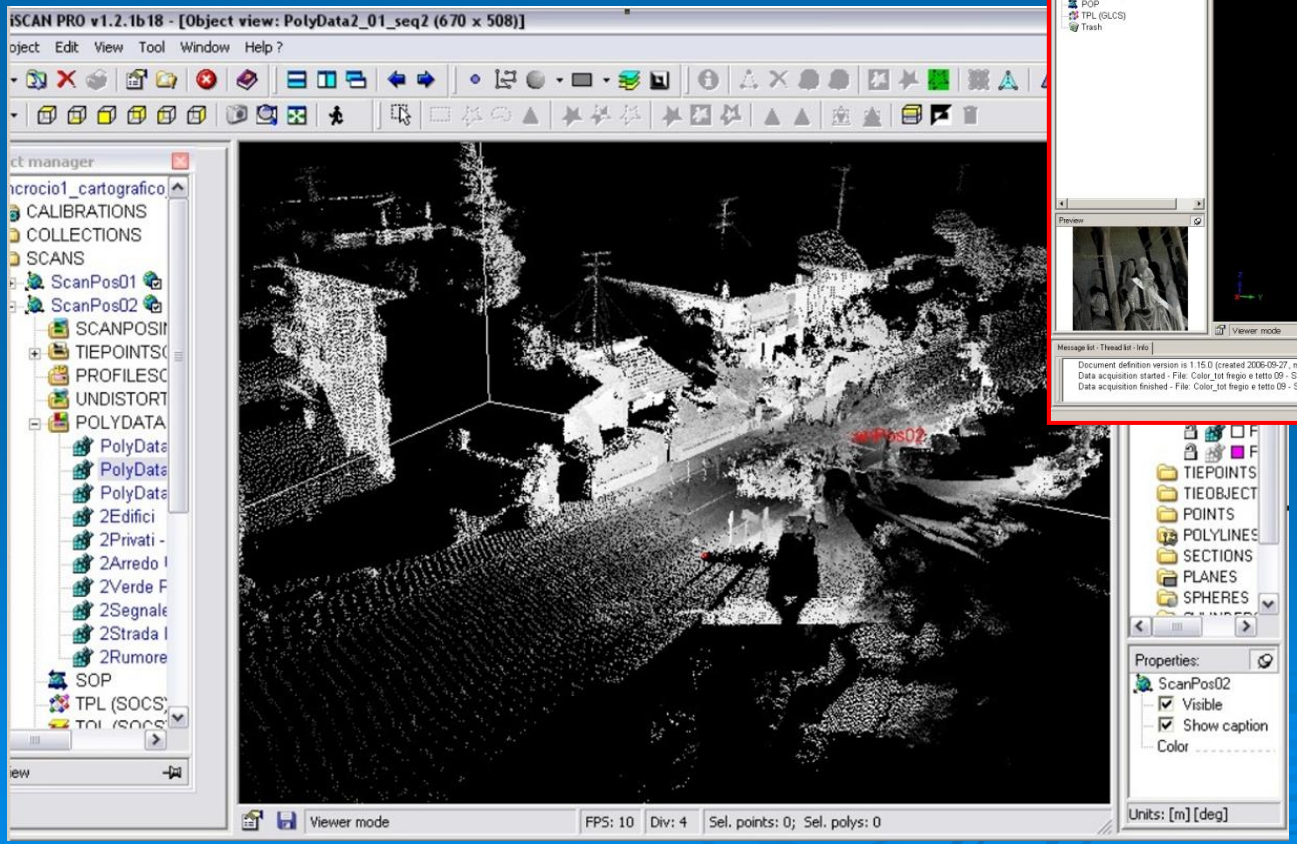
Integrazione con rilievi fotogrammetrici/laser scanner

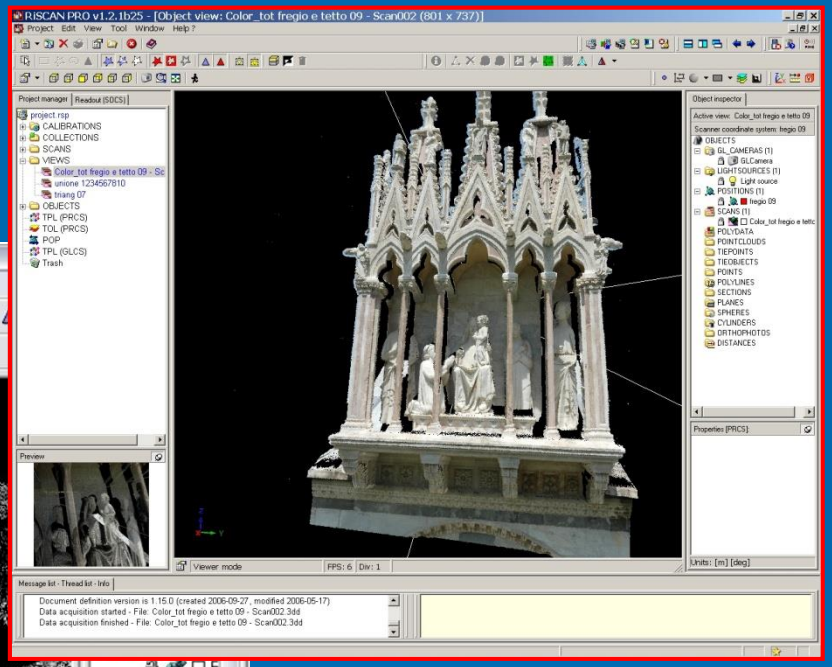


Fotogrammetria Progetto Urban - Tergeste

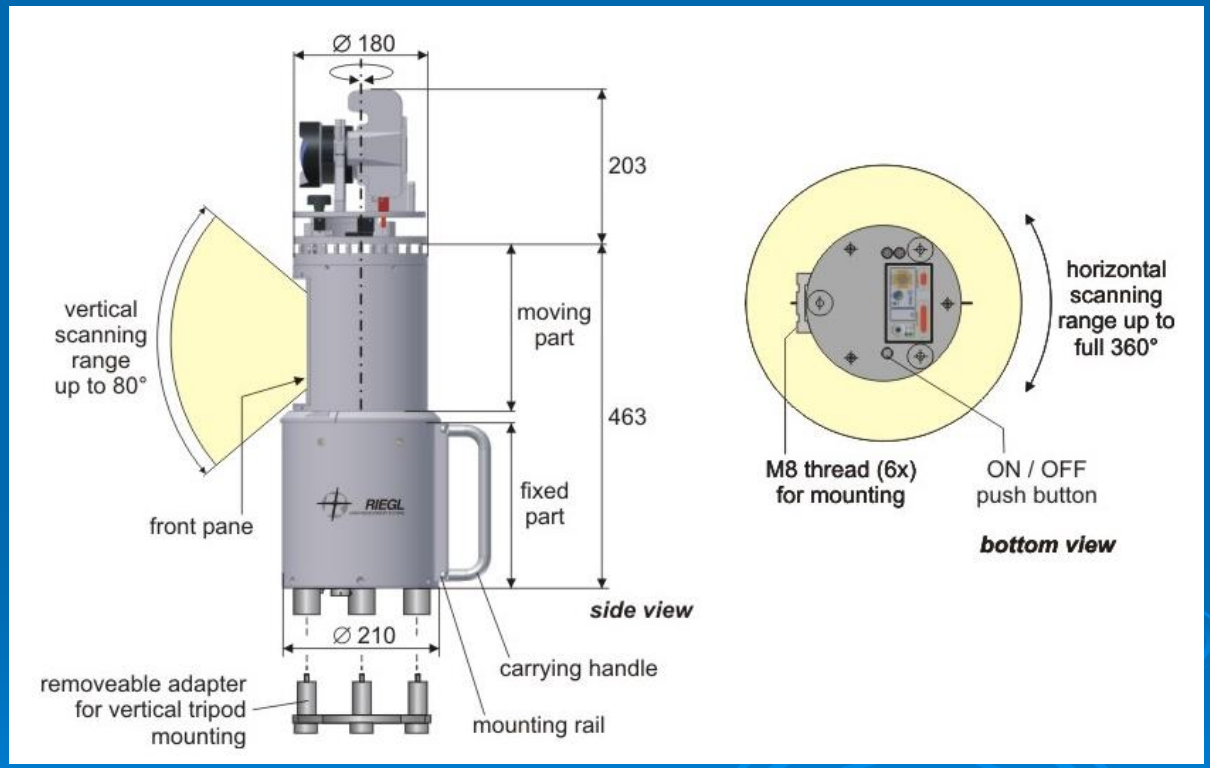


Rilievi con strumentazione Laser Scanner terrestre





Tecnologia Laser Scanning



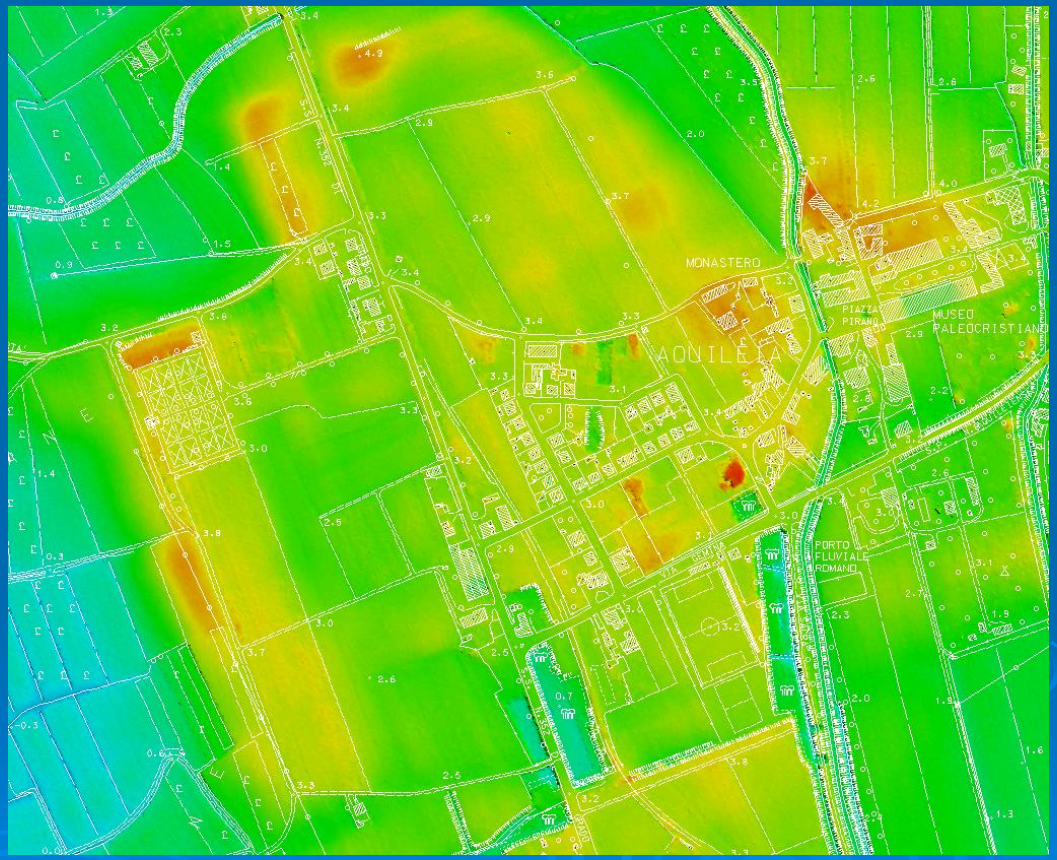
Laser Scanner surveys

- Laser scanner surveys allow to reconstruct the 3D model of the surveyed object.

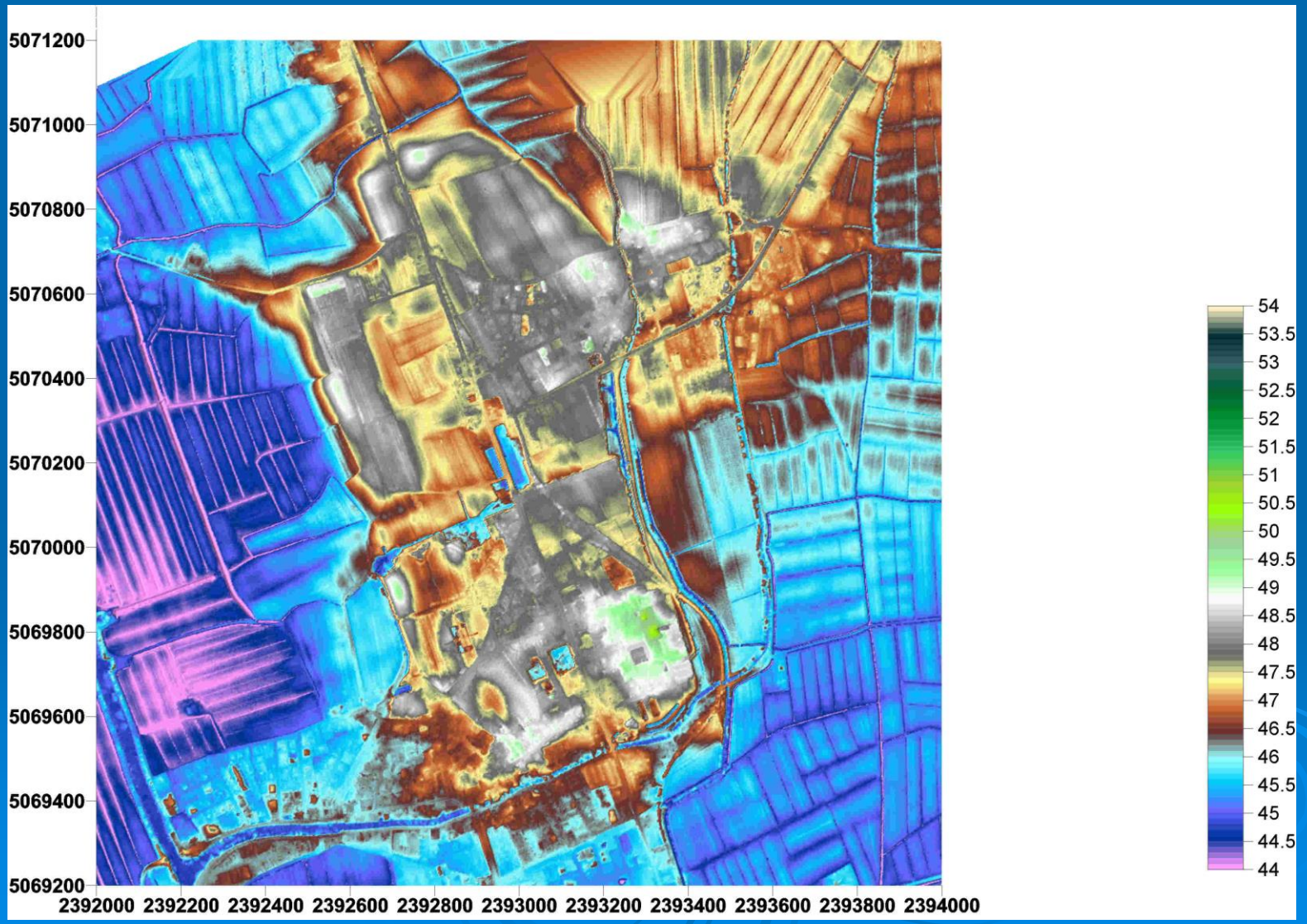
Airborne Laser scanner surveys

(Prof. Giannini, Faculty of Physics, Univ. of Trieste)

- 3D Data processing
- DTM creation
- Georeferencing



Aquileia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5069400
5069200
2392000 2392200 2392400 2392600 2392800 2393000 2393200 2393400 2393600 2393800 2394000
54
53.5
53
52.5
52
51.5
51
50.5
50
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49
48.5
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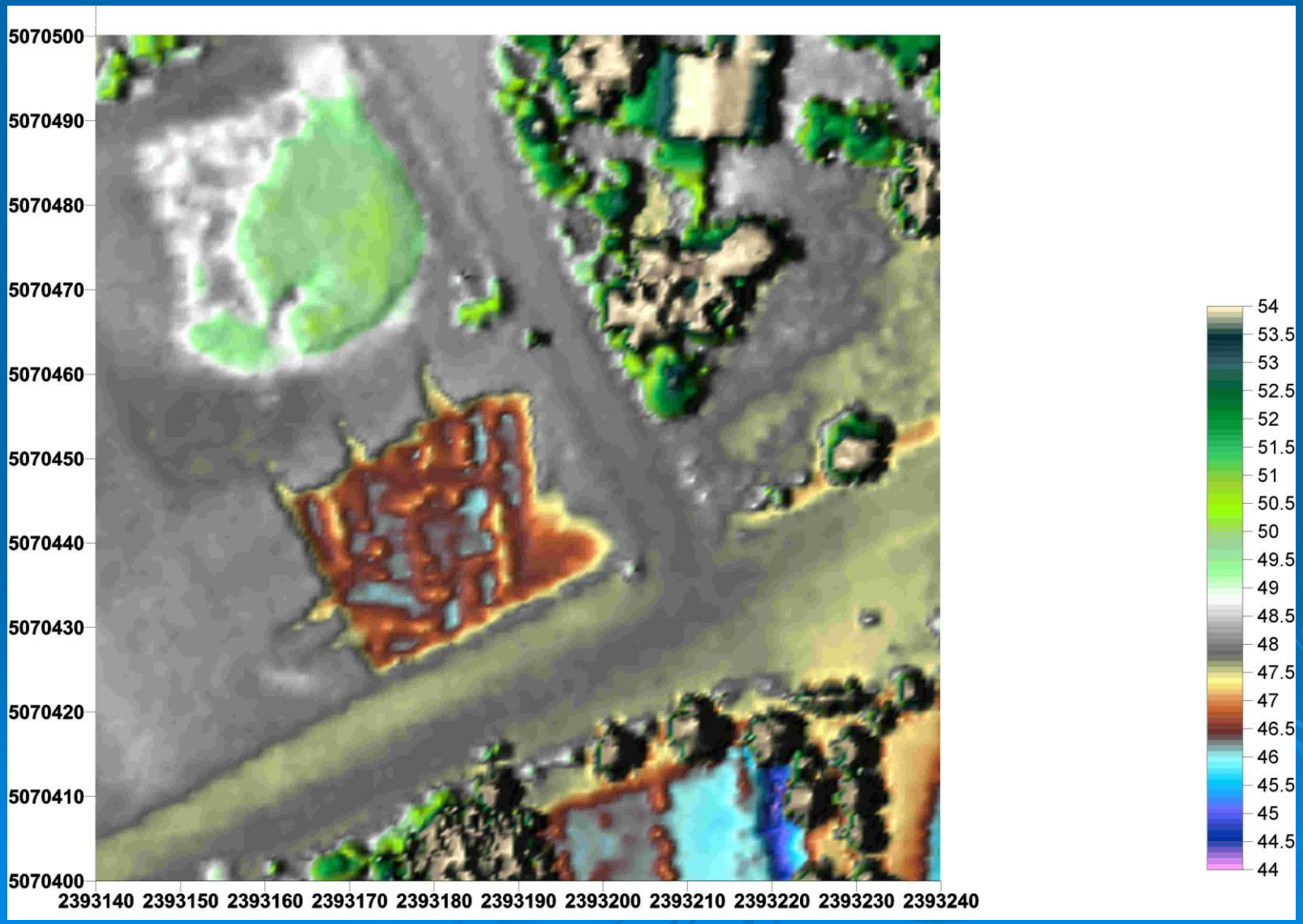
47.5
47
46.5
46
45.5
45
44.5
44

Aquileia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2393140 2393150 2393160 2393170 2393180 2393190 2393200 2393210 2393220 2393230 2393240
54
53.5
53
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52
51.5
51
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46
45.5
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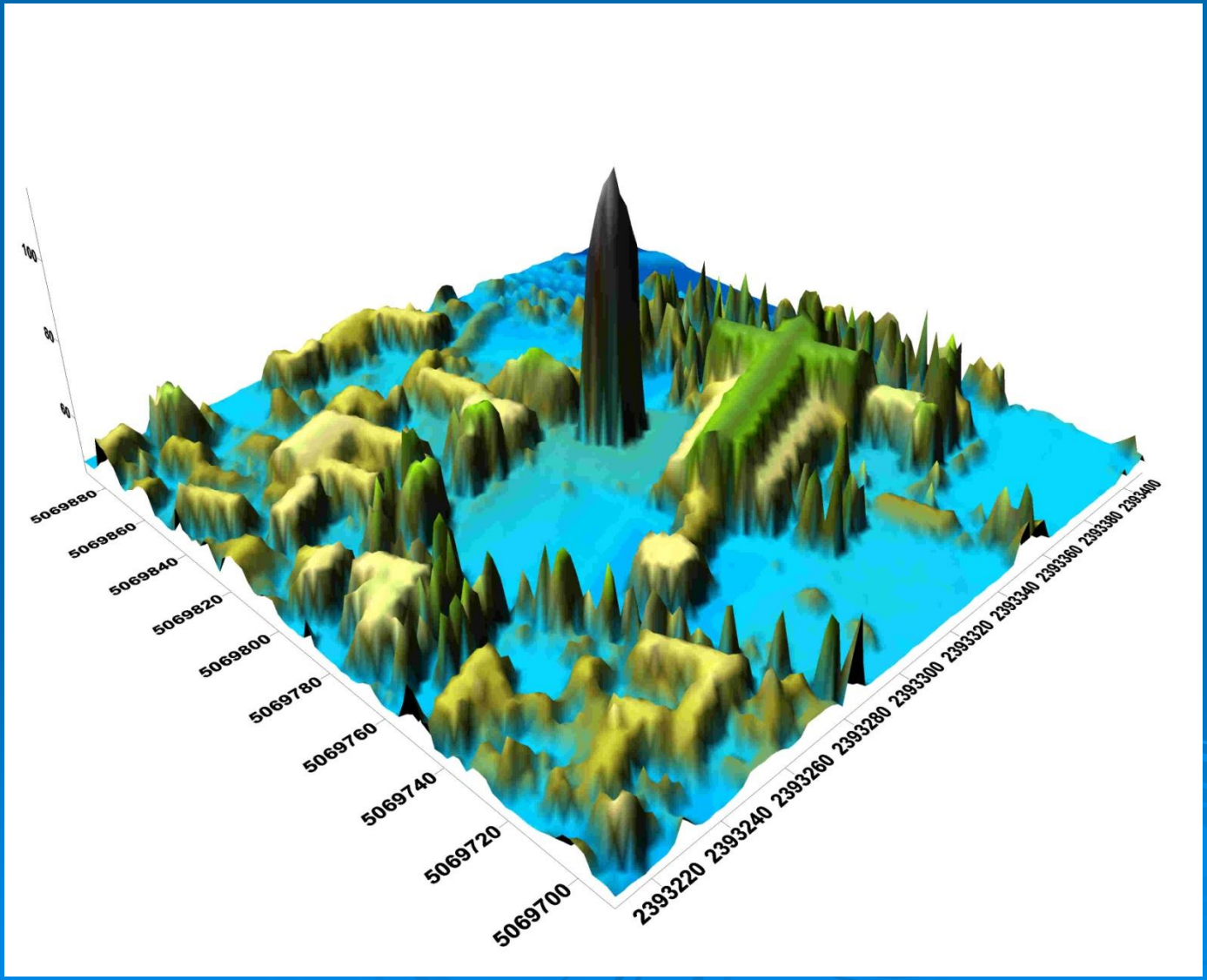
44.5
44

Aquileia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50
0
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5069720
5069700
2393220
2393240
2393260
2393280
2393300
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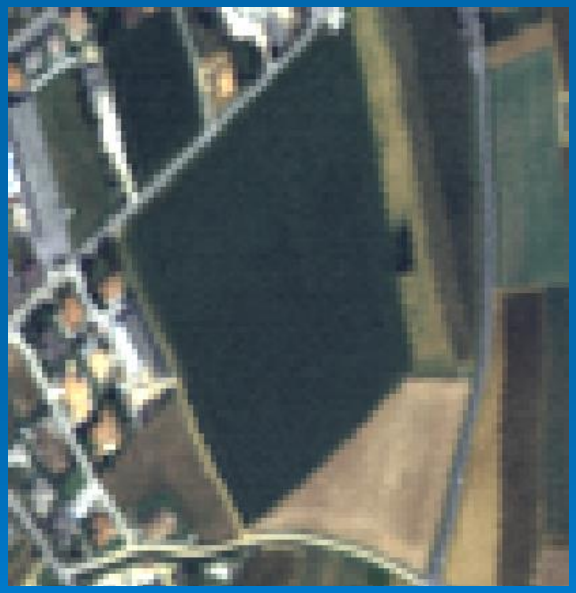
P.C.A. (Principal Components Analysis) from MIVIS images

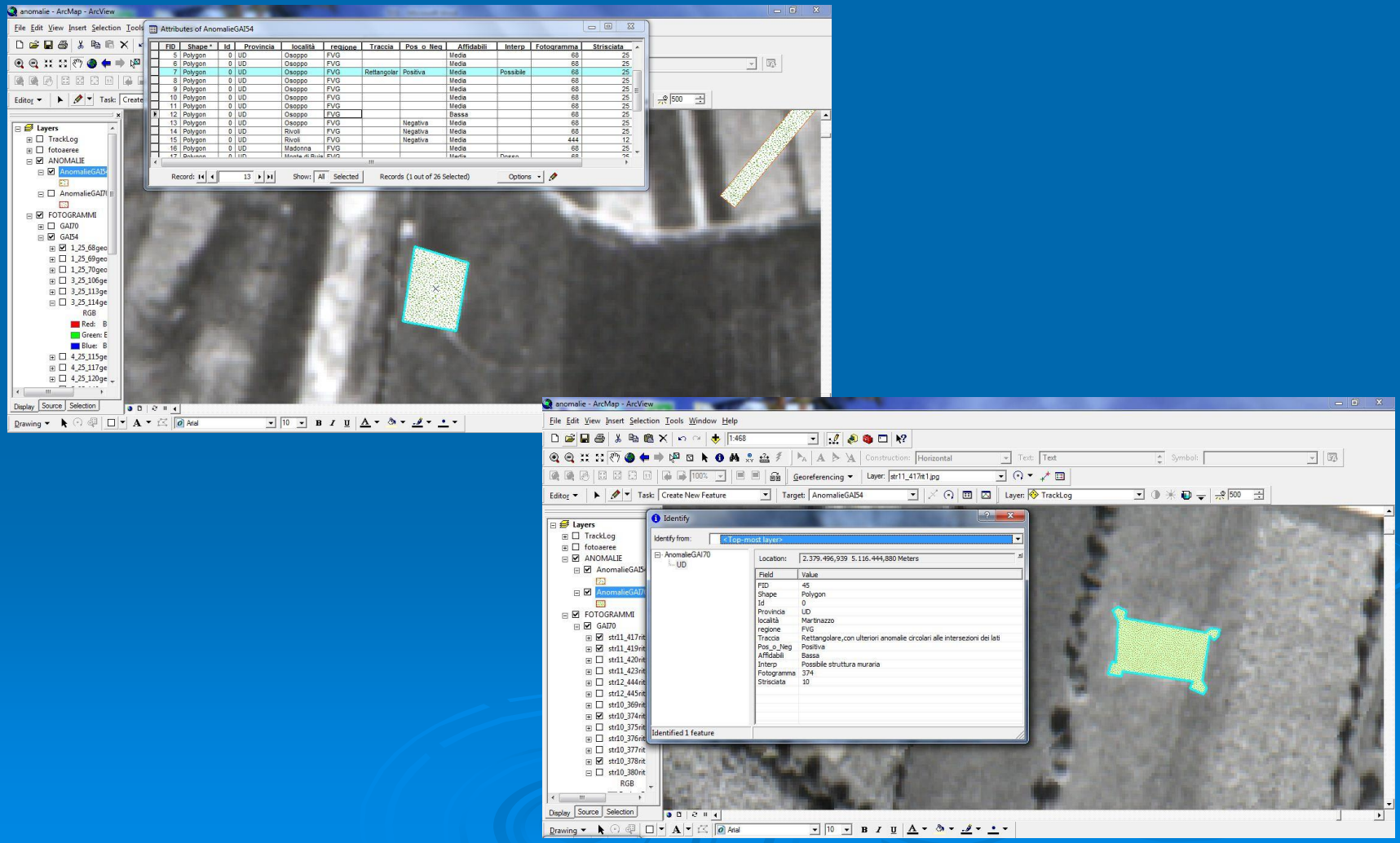
dott.ing. Giulio Montagner 2nd level Degree Thesis



RGB

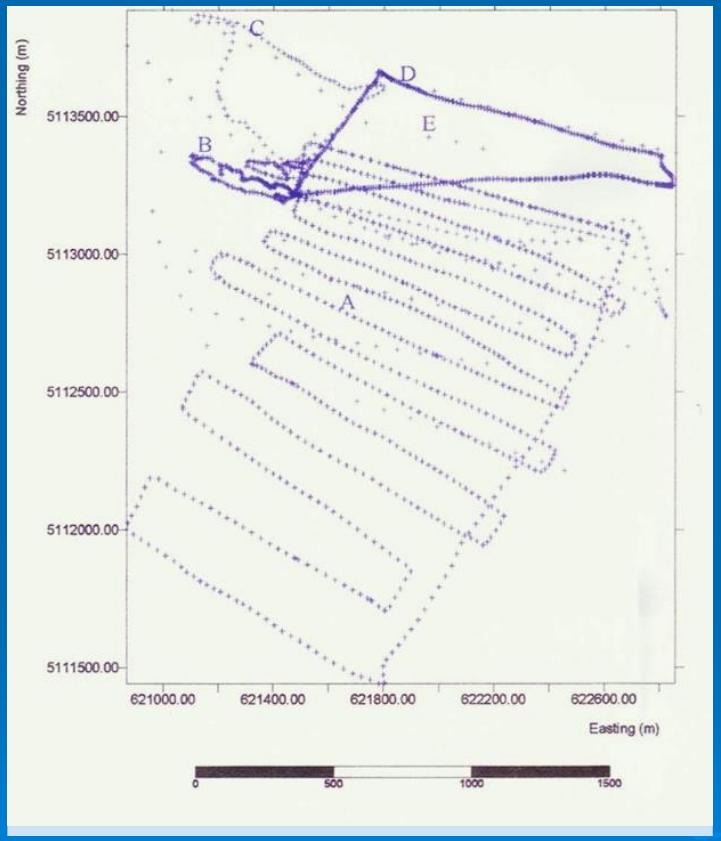
PC 5

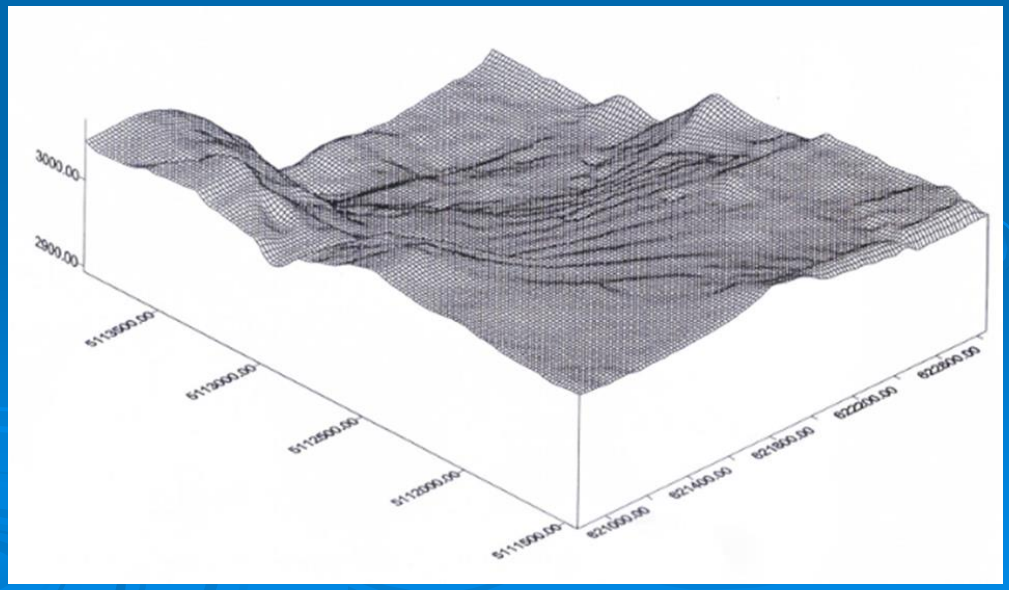
Shapefiles creation and input into GIS



Modellazione 3D

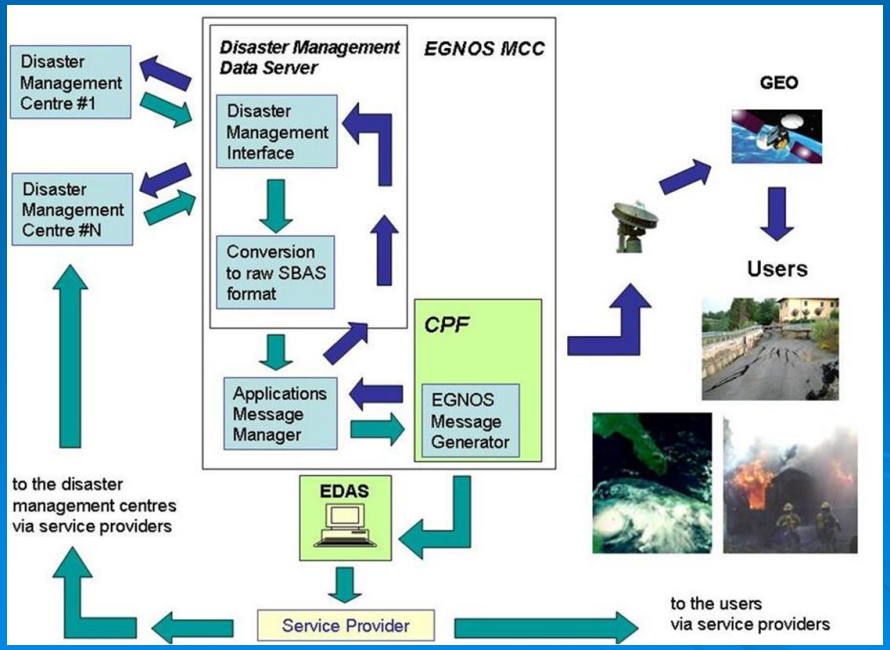
Rilievi GNSS



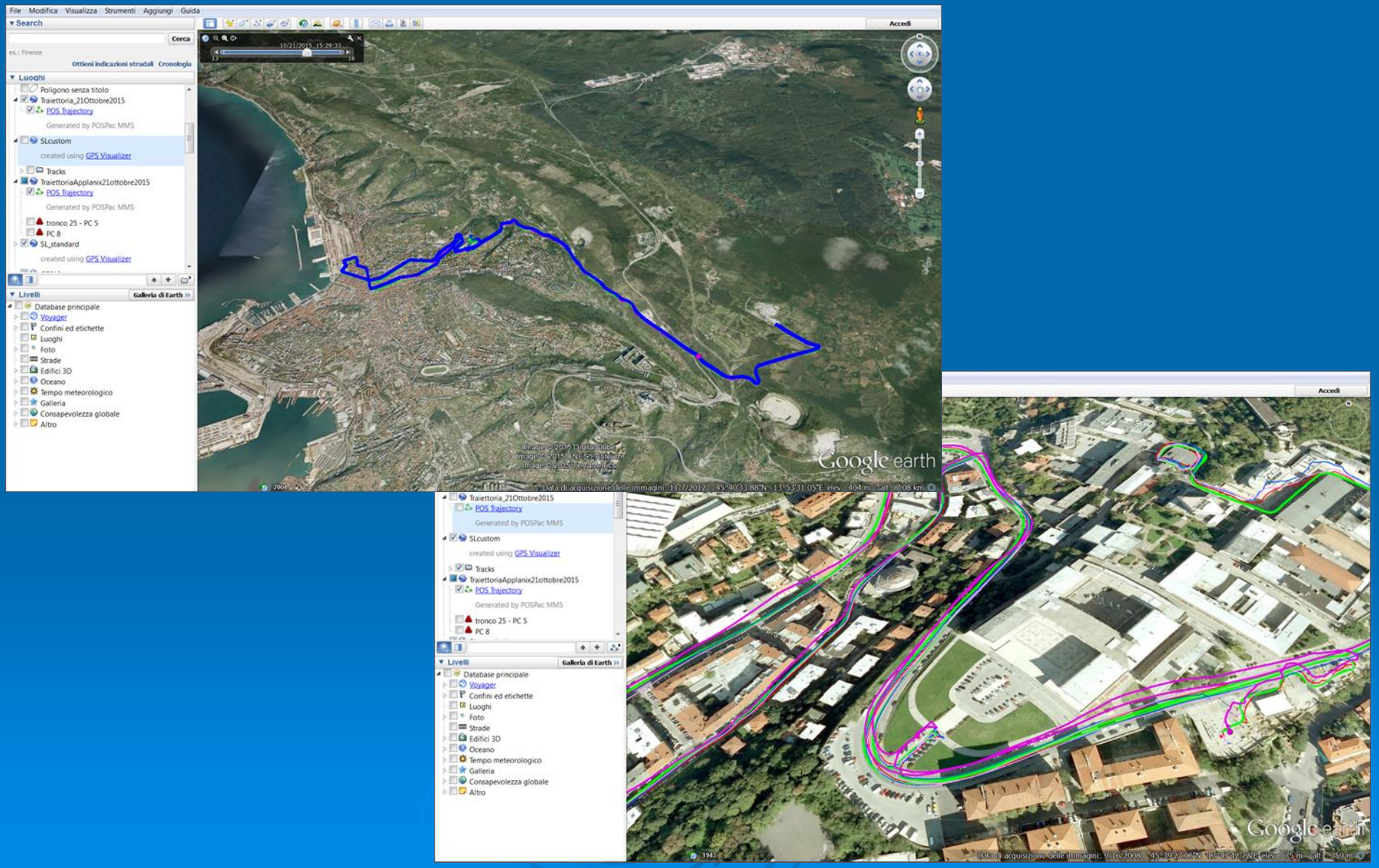


Rilievi geofisici – bilancio di massa del ghiacciaio

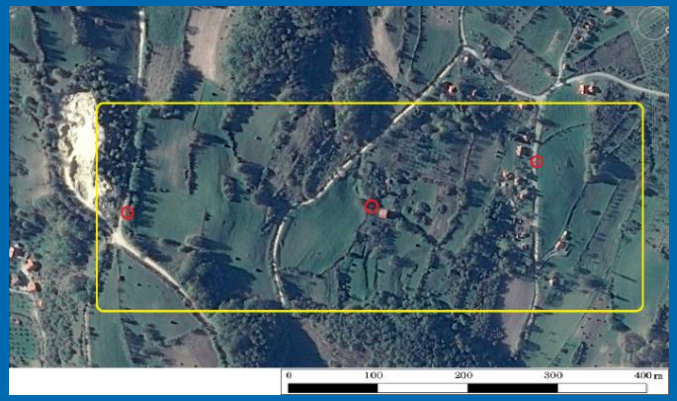
GIS – Applicazioni nell'ambito della Gestione delle emergenze ambientali



Importazione di rilievi in formato compresso .kmz su piattaforma Web GIS Google Earth



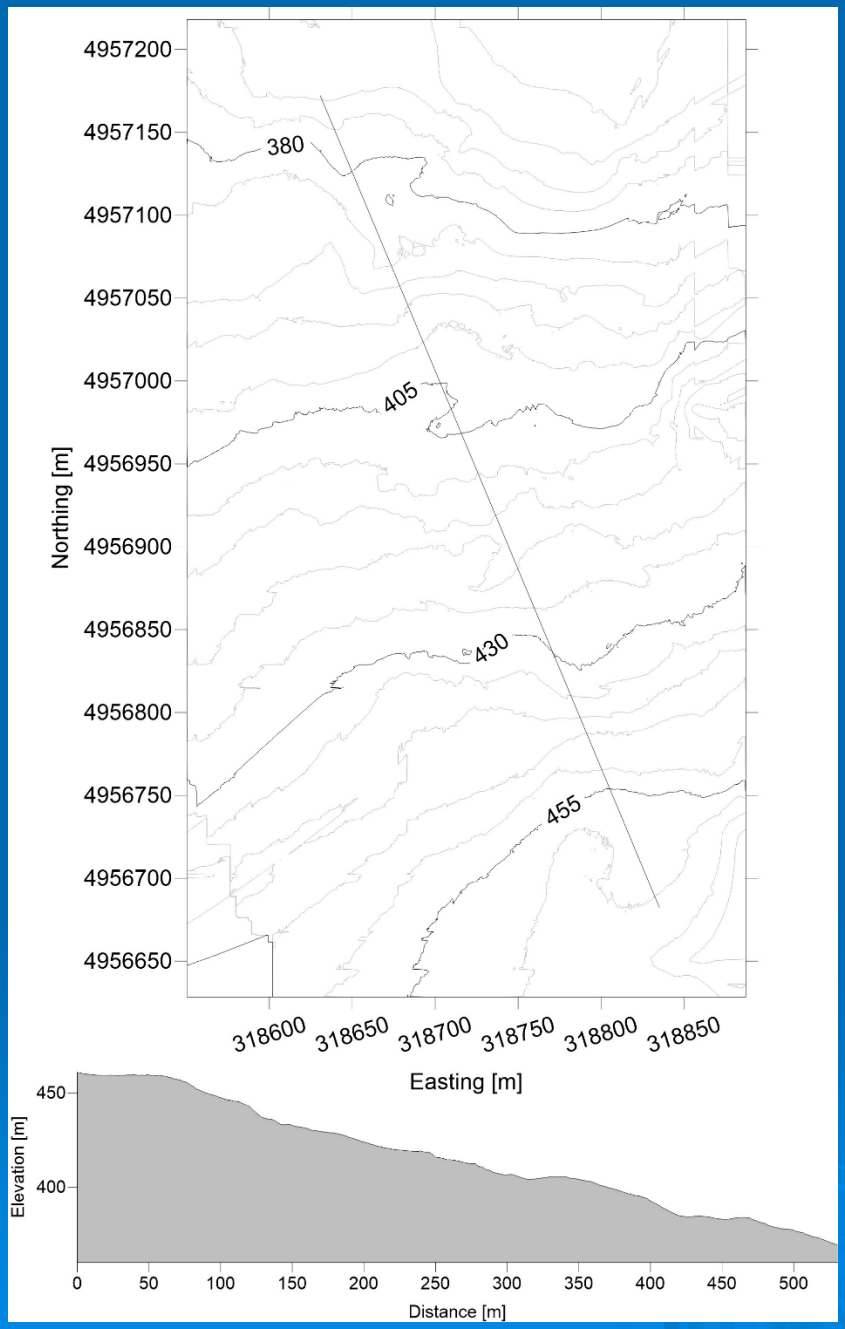
APPLICATION OF DIGITAL PHOTOGRAMMETRY FROM UAV INTEGRATED BY TERRESTRIAL LASER SCANNING TO DISASTER MANAGEMENT
BRCKO FLOODING CASE STUDY
(BOSNIA HERZEGOVINA)

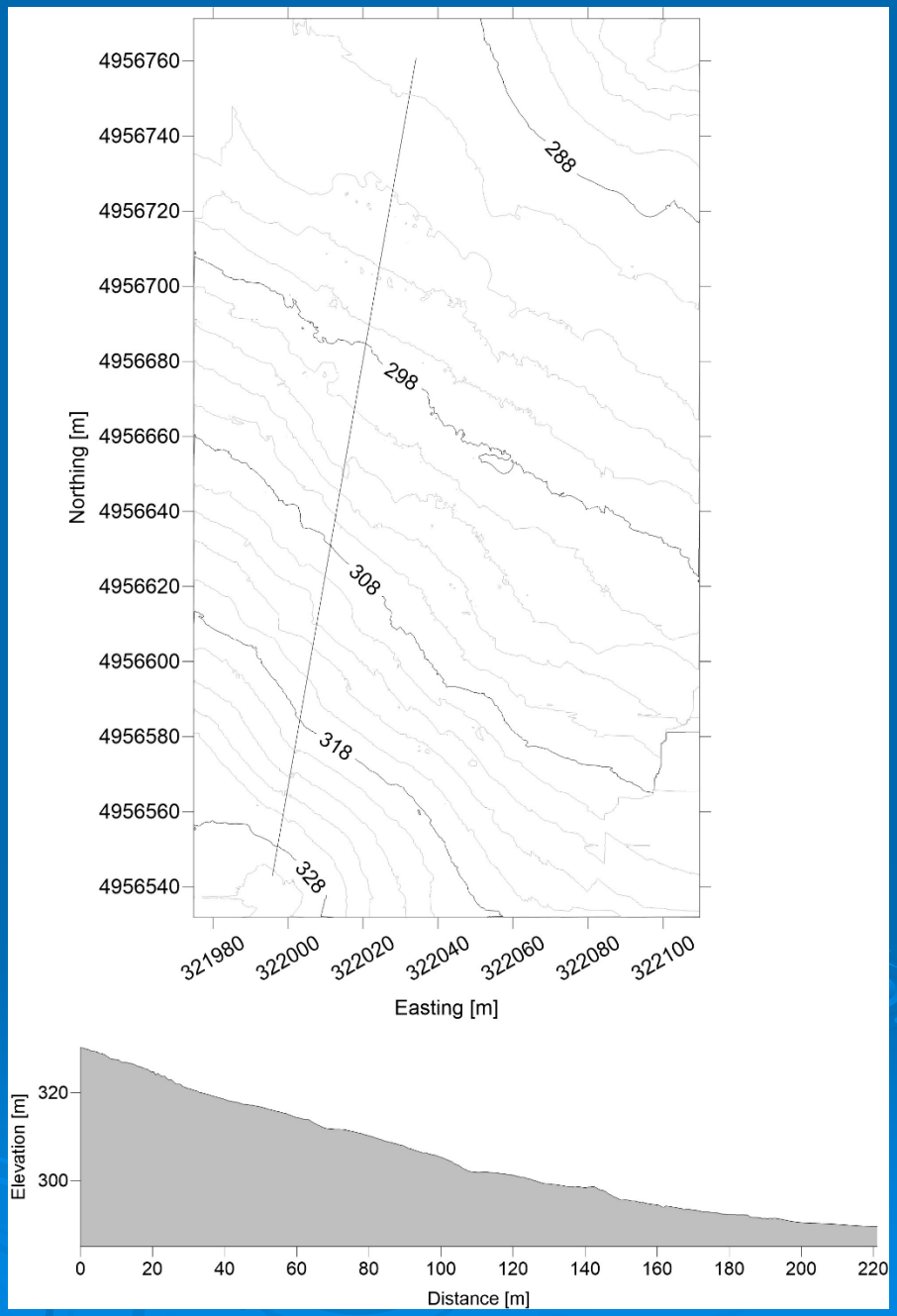


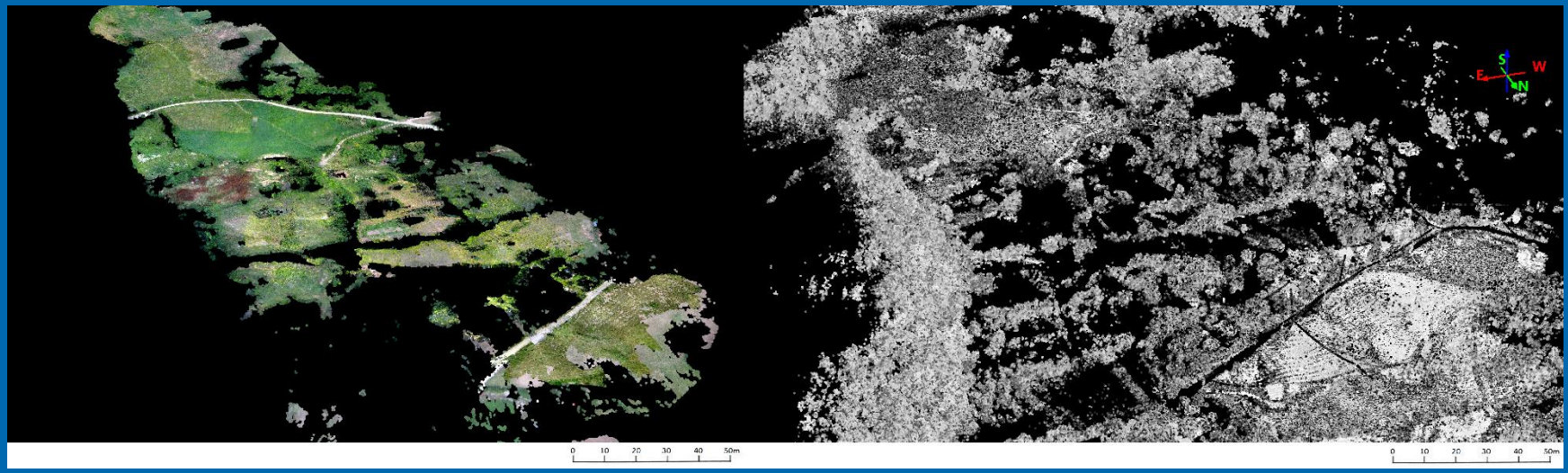
F. Cescutti

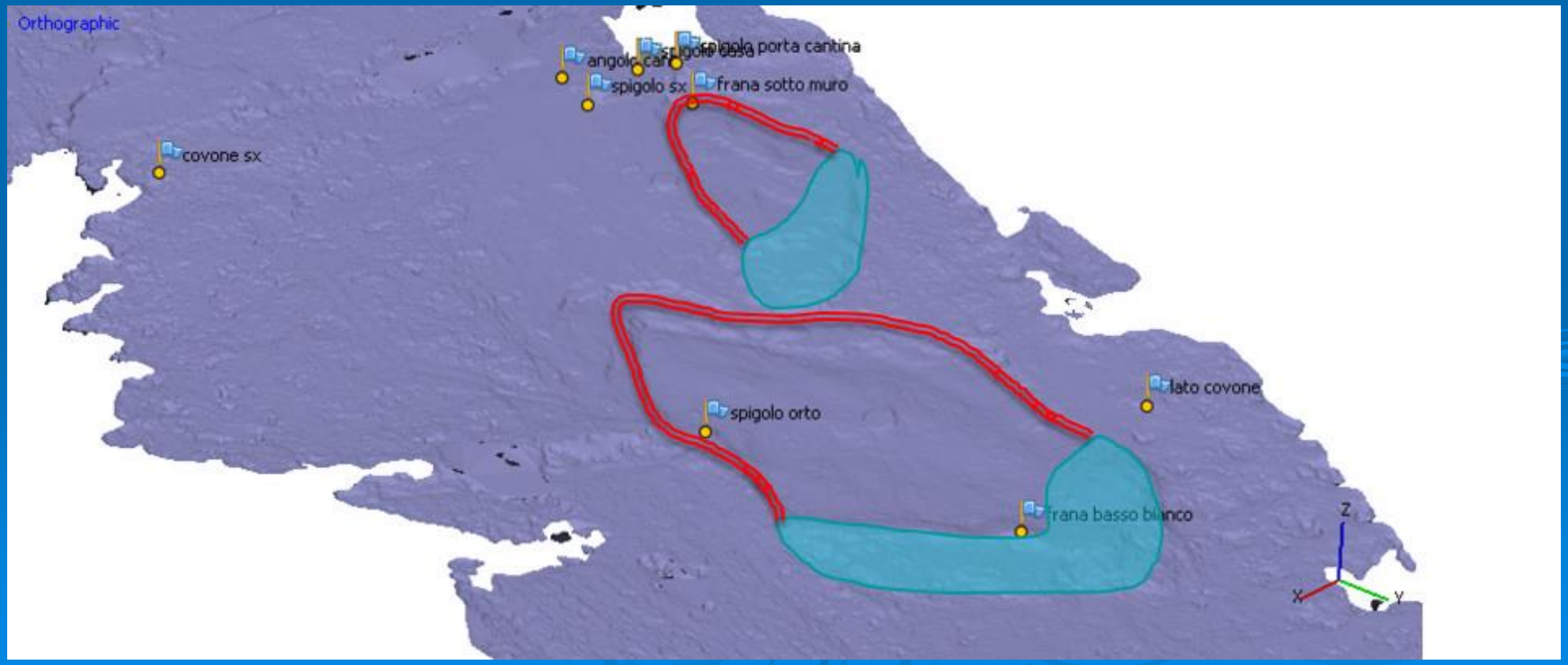
Laserscanning and UAV survey

Gornji Zovik landslide and Vrazici landslide survey

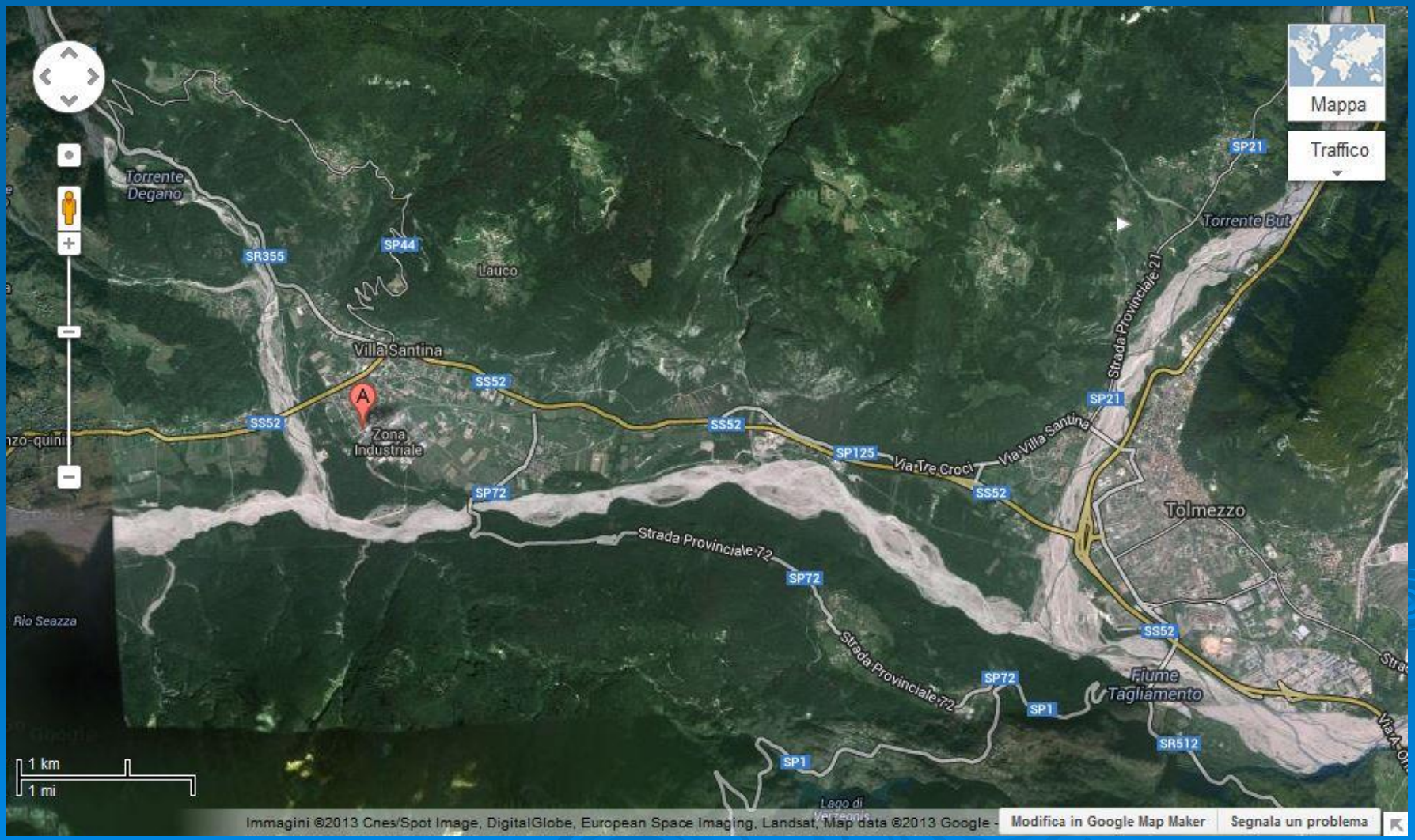

4957200
4957150
4957100
4957050
4957000
4956950
4956900
4956850
4956800
4956750
4956700
4956650
Northing [m]
380
405
430
455
318600
318650
318700
318750
318800
318850
Easting [m]
450
400
Elevation [m]
0
50
100
150
200
250
300
350
400
450
500
Distance [m]


4956760
4956740
4956720
4956700
4956680
4956660
4956640
4956620
4956600
4956580
4956560
4956540
Northing [m]
288
298
308
318
328
321980
322000
322020
322040
322060
322080
322100
Easting [m]
320
300
Elevation [m]
0
20
40
60
80
100
120
140
160
180
200
220
Distance [m]

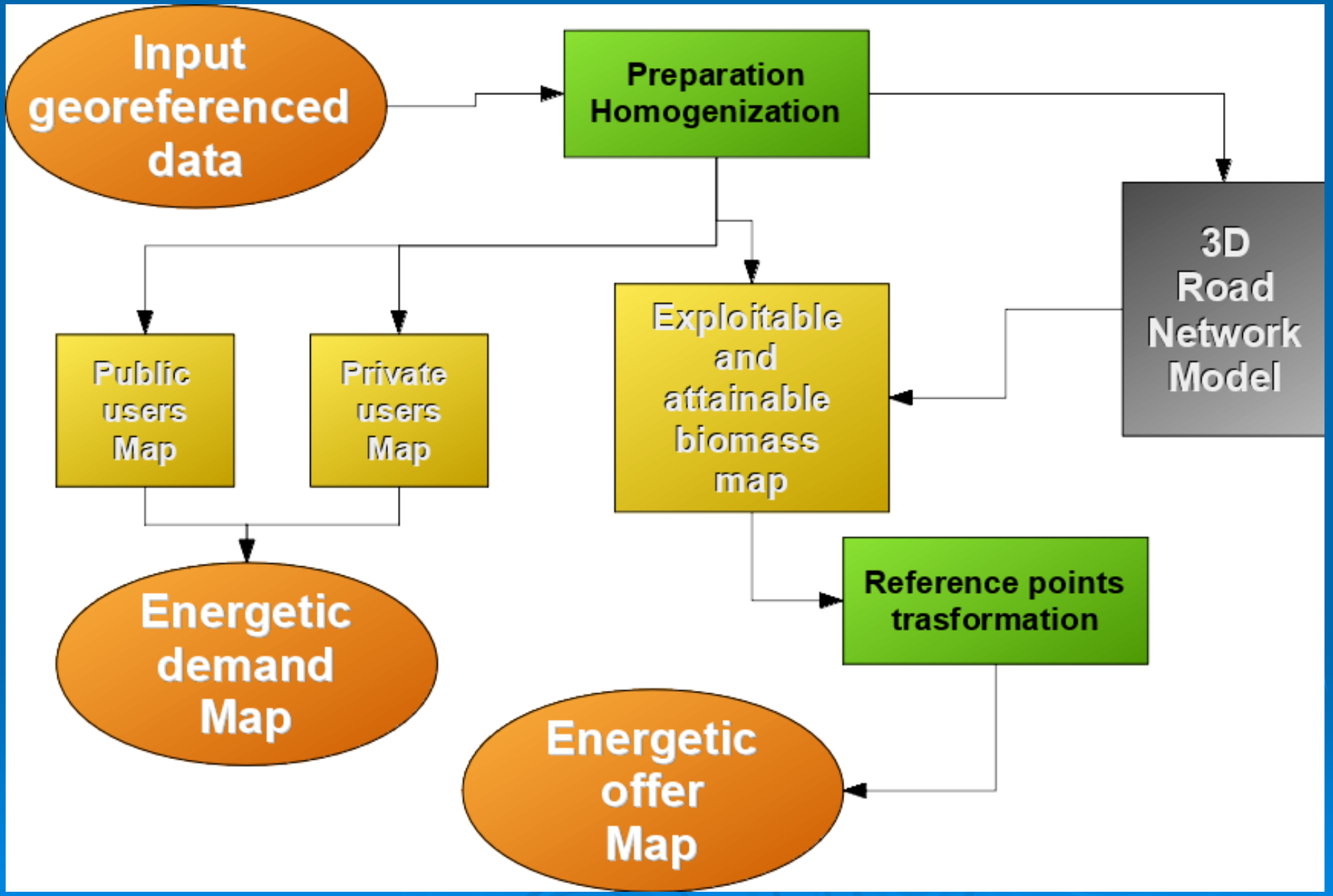

S
W
E
N
0 10 20 30 40 50m
0 10 20 30 40 50m

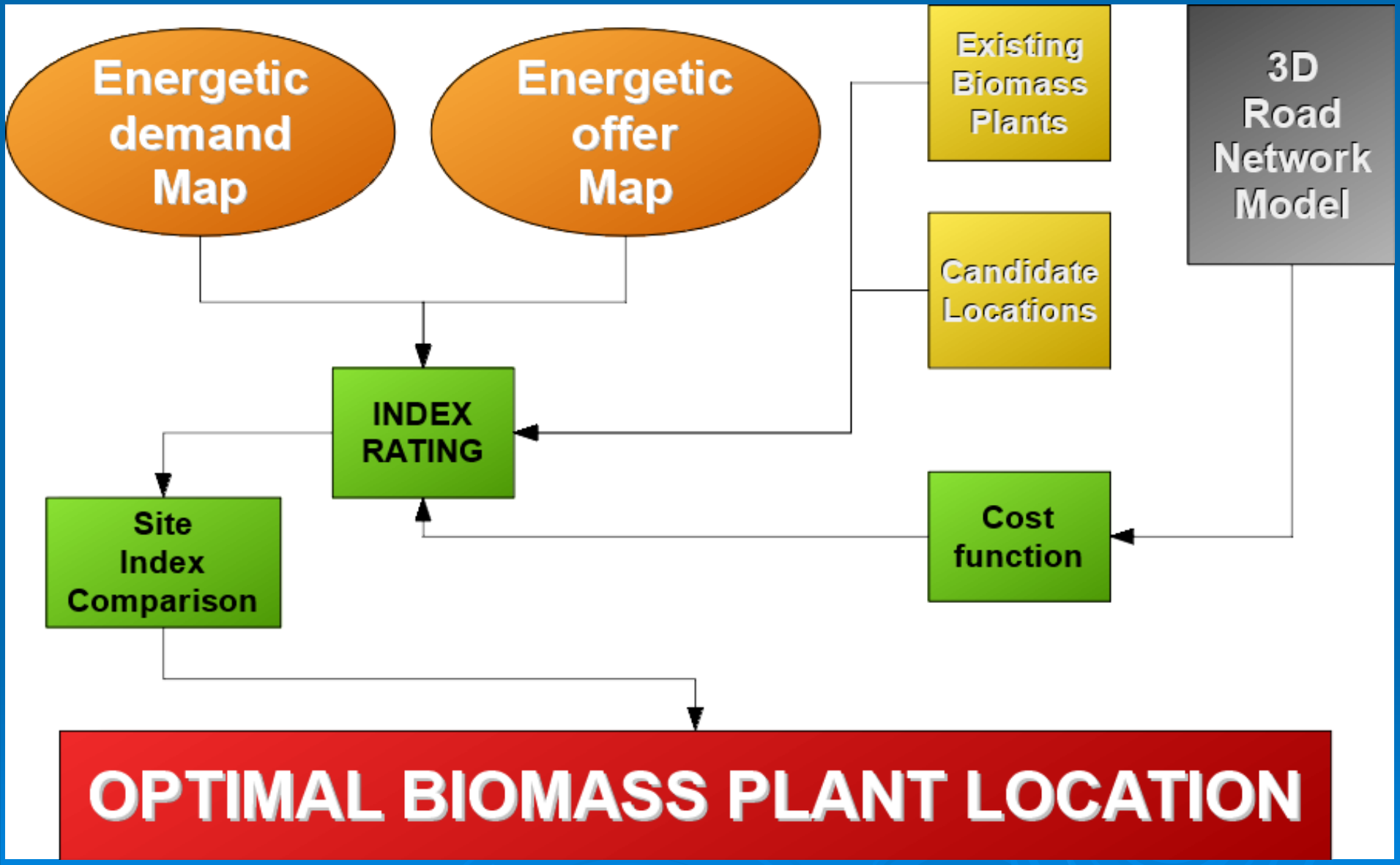

Orthographic
spigolo porta cantina
angolo casa
spigolo sx
frana sotto muro
covone sx
lato covone
spigolo orto
frana basso bianco
Z
X
Y

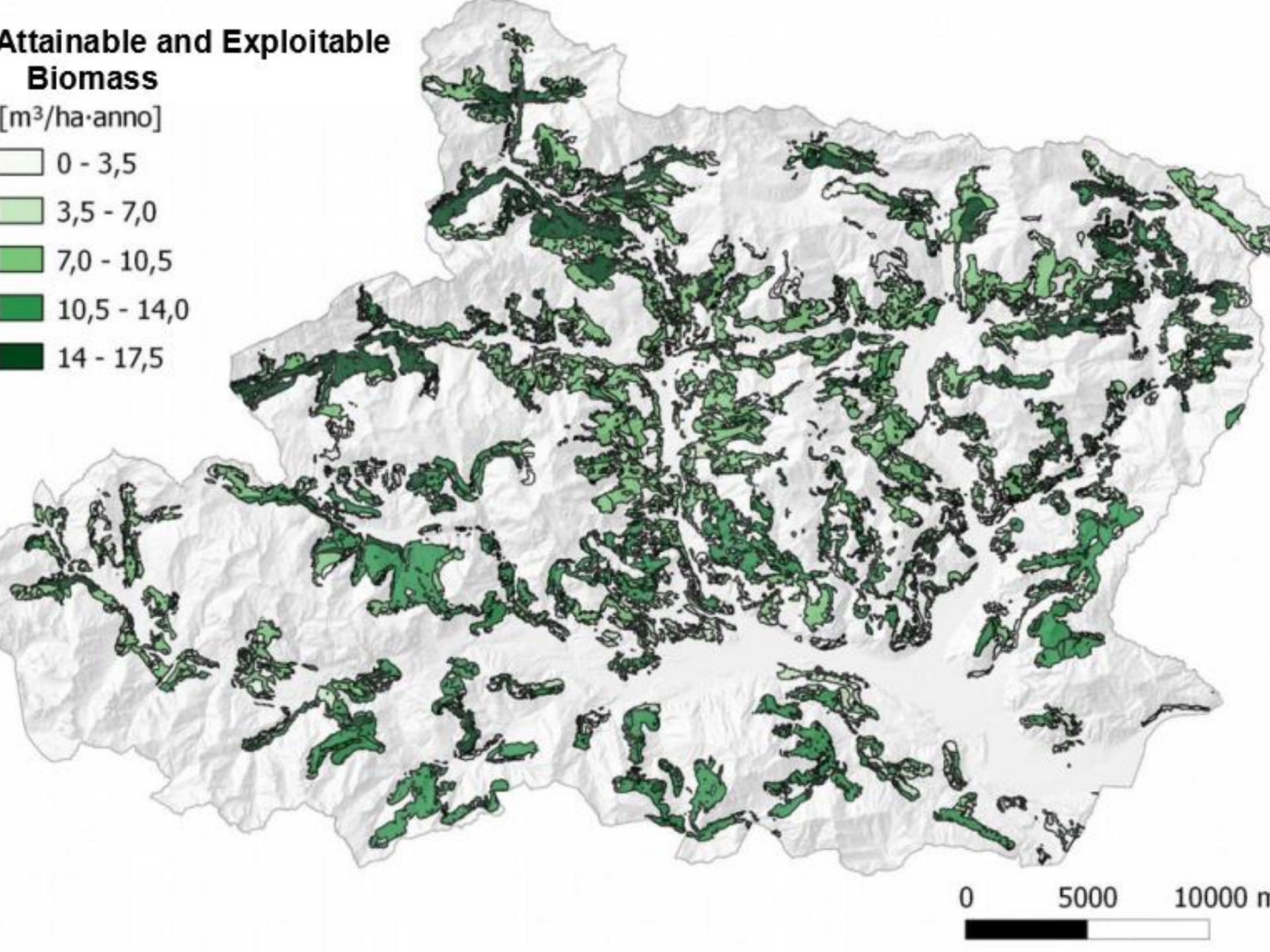
Optimization of a cogenerative biomass plant location using open source GIS techniques

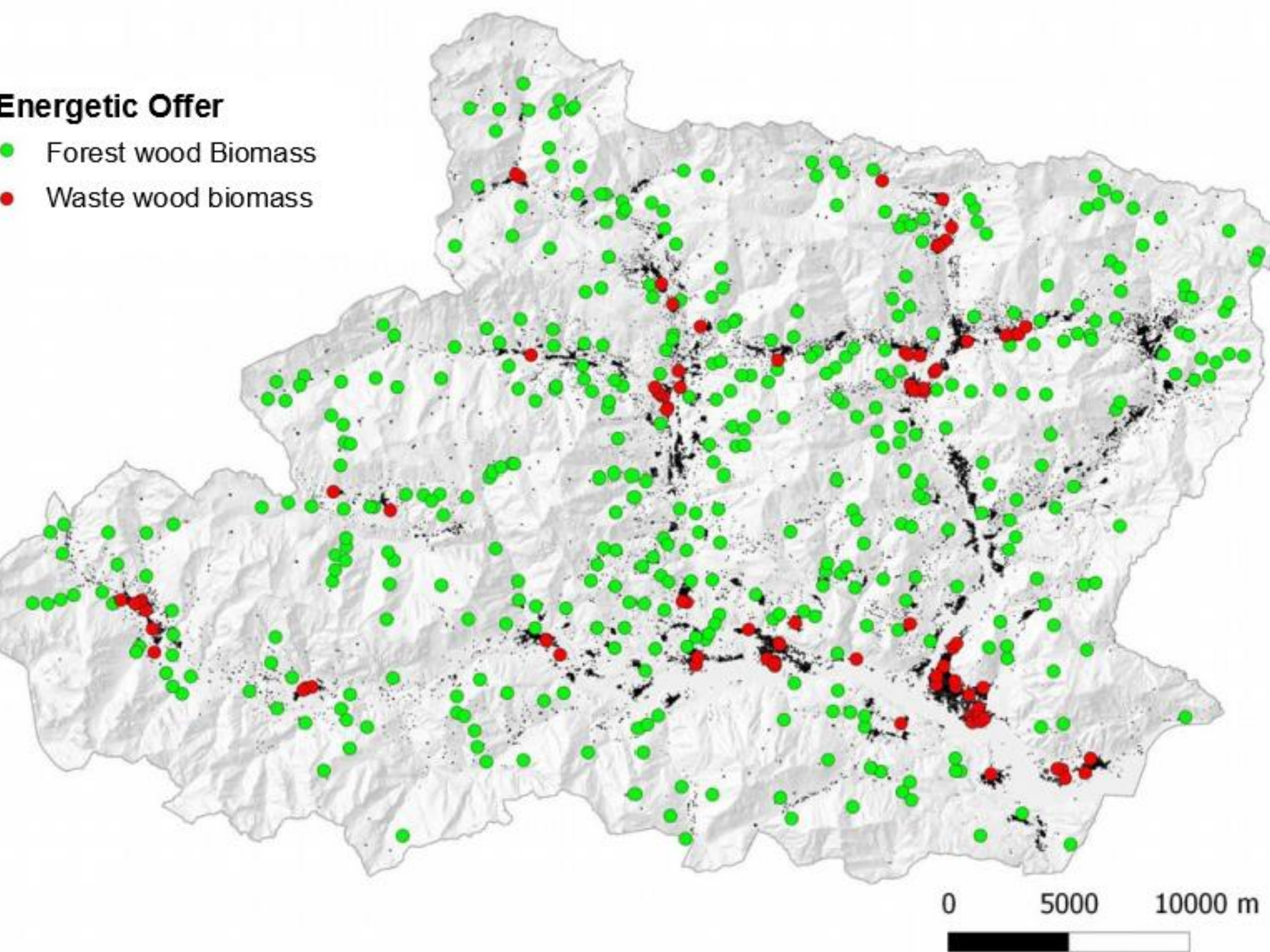


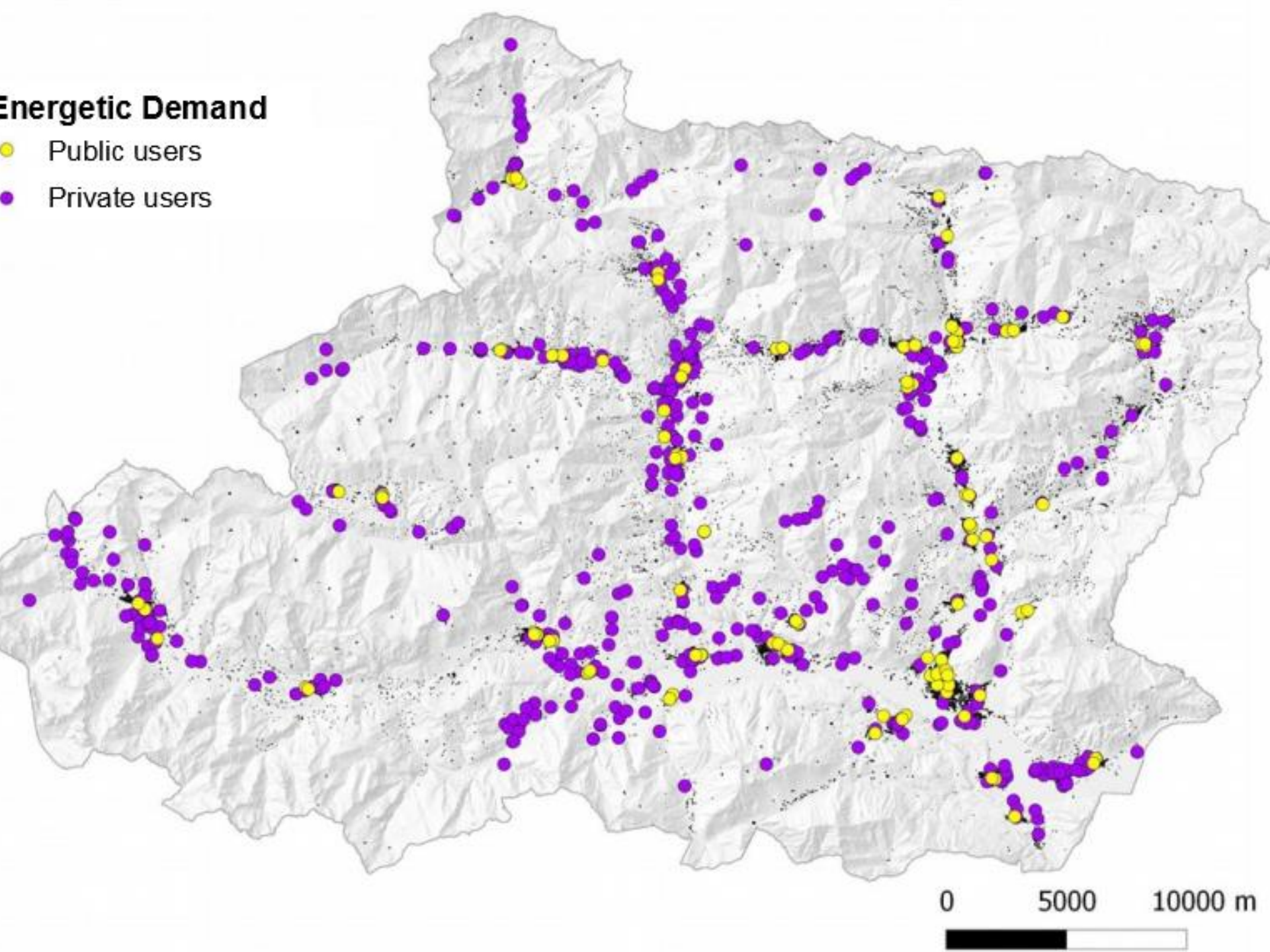
A. Tommasi

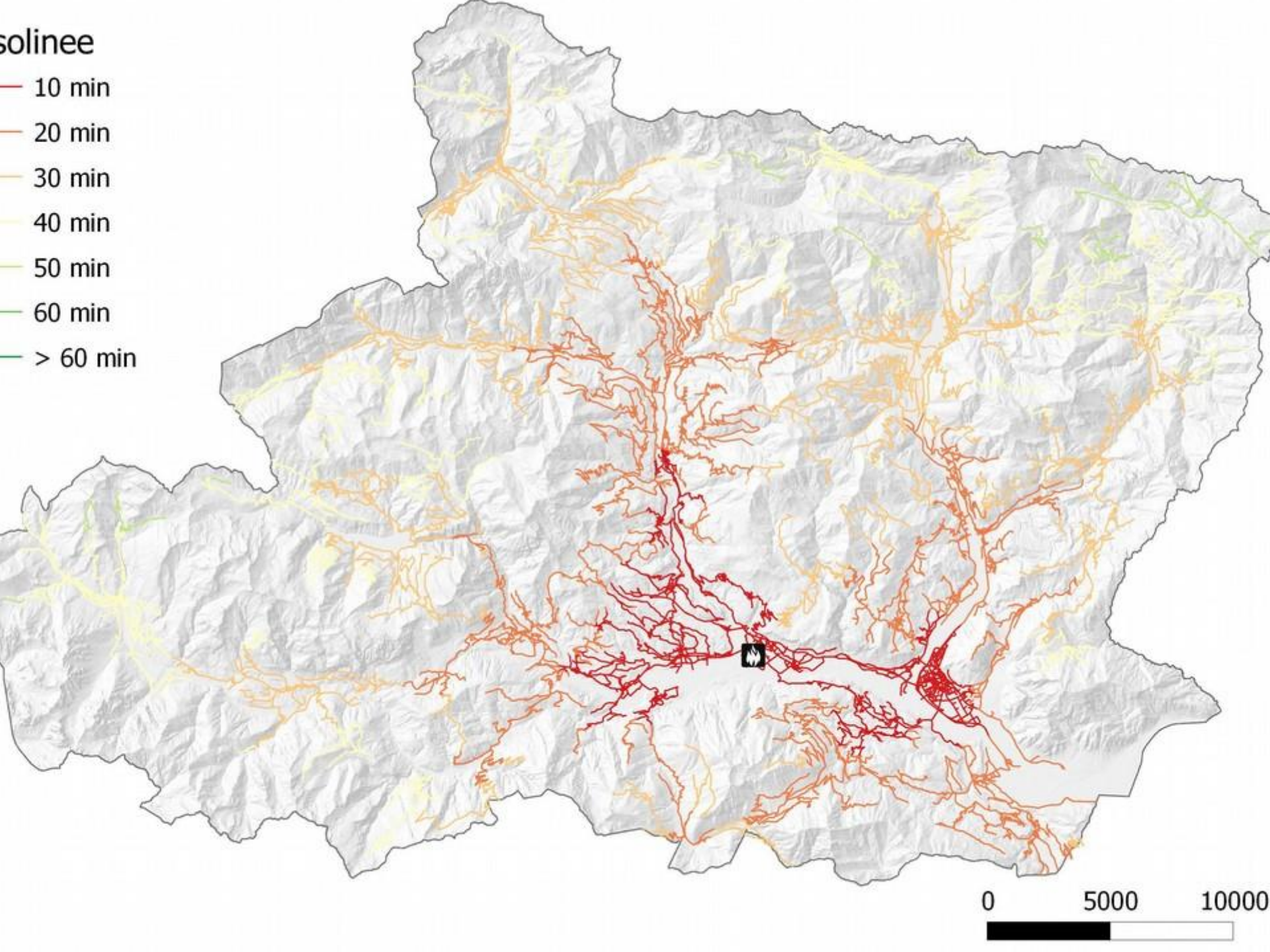

Input georeferenced data
Preparation Homogenization
3D Road Network Model
Public users Map
Private users Map
Exploitable and attainable biomass map
Reference points trasformation
Energetic demand Map
Energetic offer Map


Energetic demand Map
Energetic offer Map
Existing Biomass Plants
3D Road Network Model
Candidate Locations
INDEX RATING
Site Index Comparison
Cost function
OPTIMAL BIOMASS PLANT LOCATION


Attainable and Exploitable Biomass
[m³/ha·anno]
0 - 3,5
3,5 - 7,0
7,0 - 10,5
10,5 - 14,0
14 - 17,5
0
5000
10000 m


Energetic Offer
Forest wood Biomass
Waste wood biomass
0
5000
10000 m


Energetic Demand
Public users
Private users
0
5000
10000 m


solinee
10 min
20 min
30 min
40 min
50 min
60 min
> 60 min
0
5000
10000

	EX RSU	EX MARCONI	FORNI DI SOPRA	SAURIS	TREPPO CARNICO
BIOMASSA BOSCHIVA RAGGIUNGIBILE	7,0	9,3	3,0	3,7	8,5
ATTIVITA' DI LAVORAZIONE DEL LEGNO	10	9,6	1,5	0,6	4,2
VICINANZA UTENZE PRIVATE	6,3	6,2	0,7	0,5	10
VICINANZA UTENZE INDUSTRALI	9,3	10	1,0	1,3	4,0
VICINANZA UTENZE PUBBLICHE	10	9,3	0,6	1,6	6,3
CONCORRENZA CON ALTRE CENTRALI	0,0	1,0	10	9,2	2,6
RATING	**7,1**	**7,6**	**2,8**	**2,8**	**5,9**

	ARTA TERME	PRATO CARNICO	FORNI AVOLTRI	VERZEGNIS	AMPEZZO
BIOMASSA BOSCHIVA RAGGIUNGIBILE	9,1	10	7,1	5,6	7,3
ATTIVITA' DI LAVORAZIONE DEL LEGNO	8,7	4,3	2,1	7,9	5,5
VICINANZA UTENZE PRIVATE	6,0	3,1	1,8	5,4	3,6
VICINANZA UTENZE INDUSTRALI	8,0	6,3	4,5	7,8	4,8
VICINANZA UTENZE PUBBLICHE	8,6	4,0	2,4	7,2	5,8
CONCORRENZA CON ALTRE CENTRALI	7,4	9,1	9,0	1,3	7,9
RATING	**8,0**	**6,1**	**4,5**	**5,9**	**5,8**