EESTI
GEOLOOGIATEENISTUS

Euroopa Liit
Euroopa
Regionaalarengu Fond

Eesti
tuleviku heaks

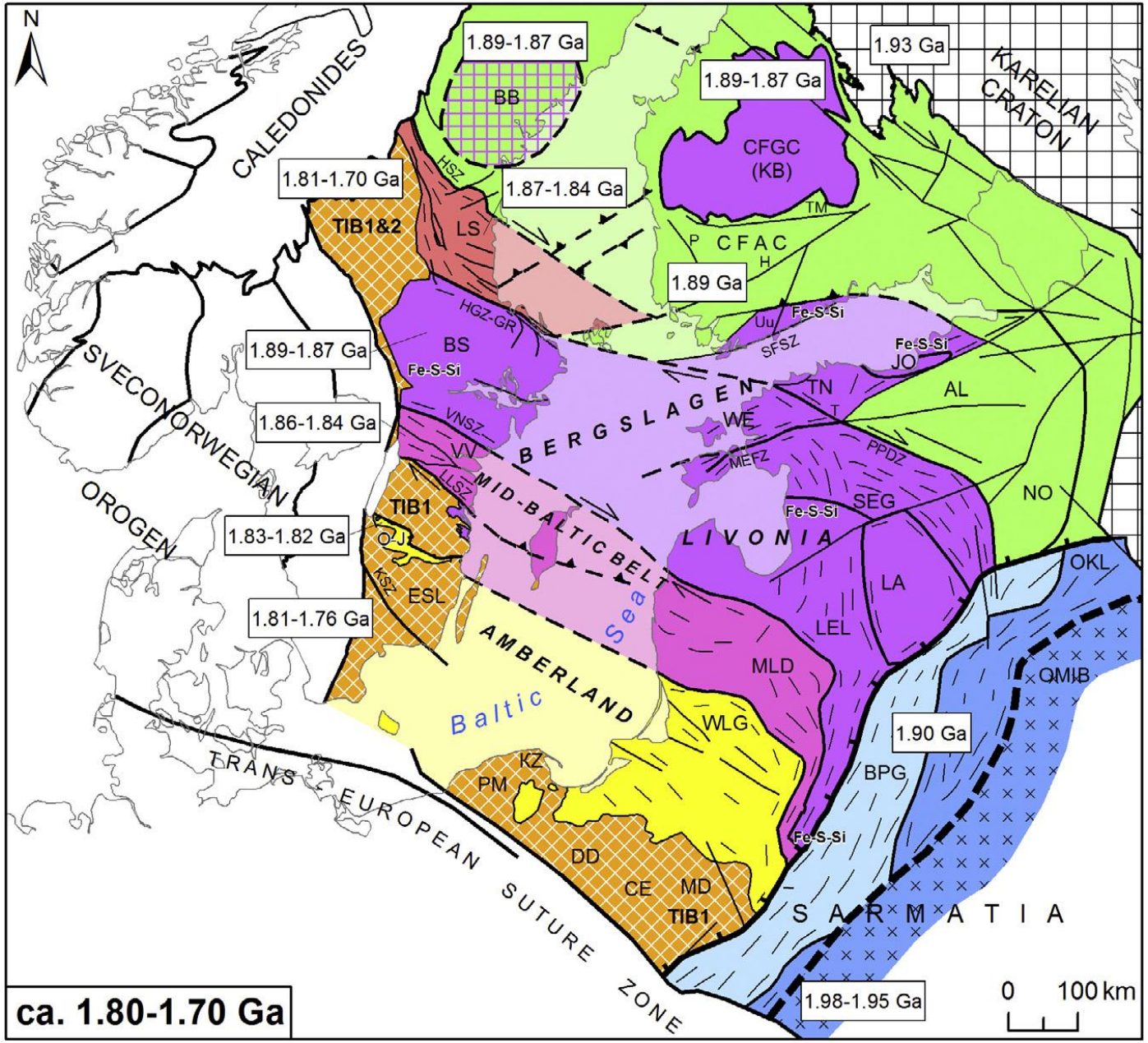
RITA MAARE ja RESTA20

Jõhvi magnetanomaalia uuringud

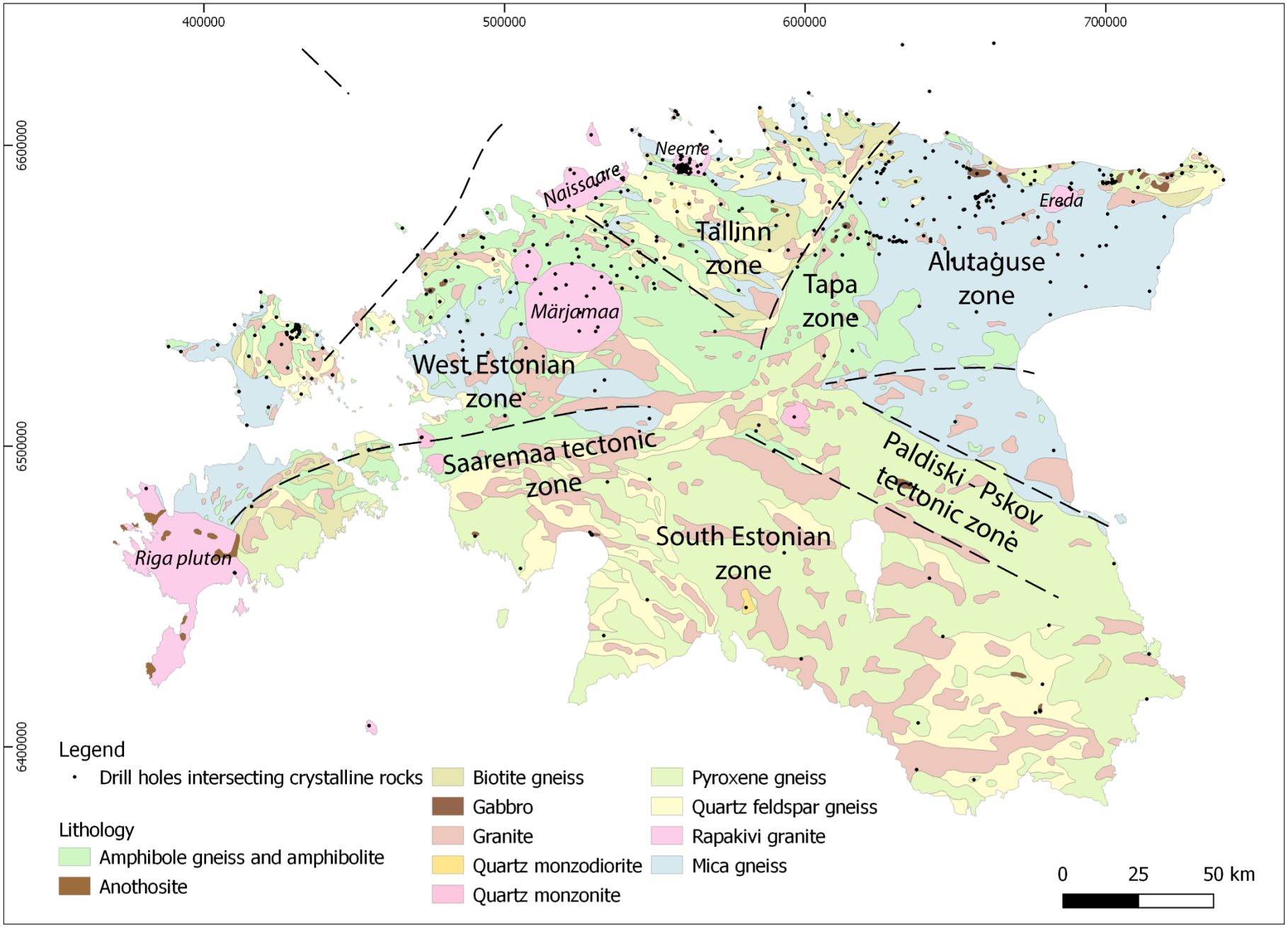
Siim Nirgi
geoloog

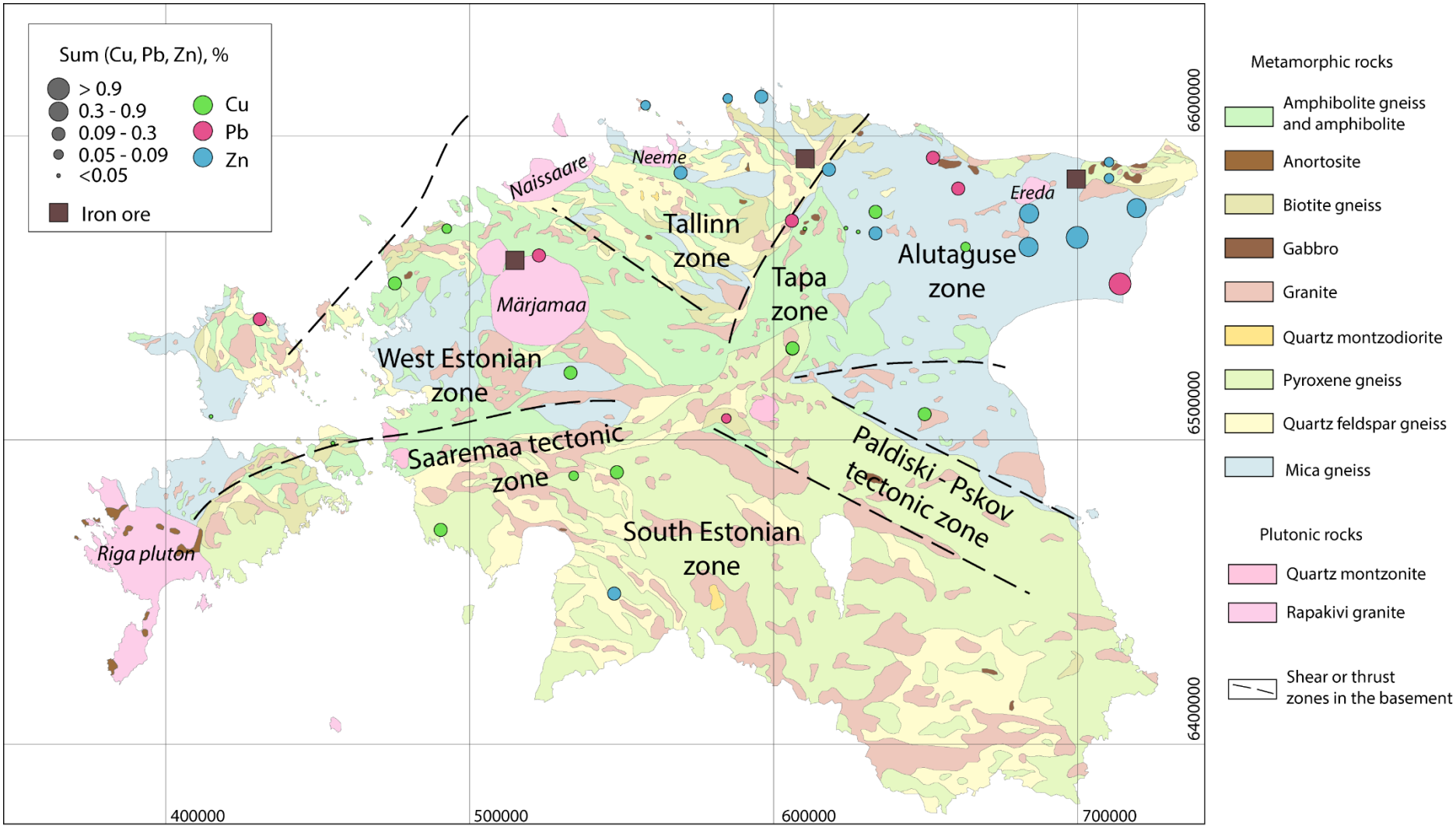

21° E
N
0 100 200 km
60° N
Sweden
Norway
Finland
Russia
Oslo
Stockholm
Helsinki
St. Petersburg
Murmansk
Base metals (Ni)
Base metals (Co, Cu, Pb, Zn)
Ferrous metals (Cr, Fe, Mn, Ti, V)
Precious metals (Ag, Au, Pd, Pt, Rh)
Special metals (Be, Li, Mo, Nb, REE, Sc, Sn, Ta, W, Zr)
Energy metals (U, Th)

Eilu, P. 2012

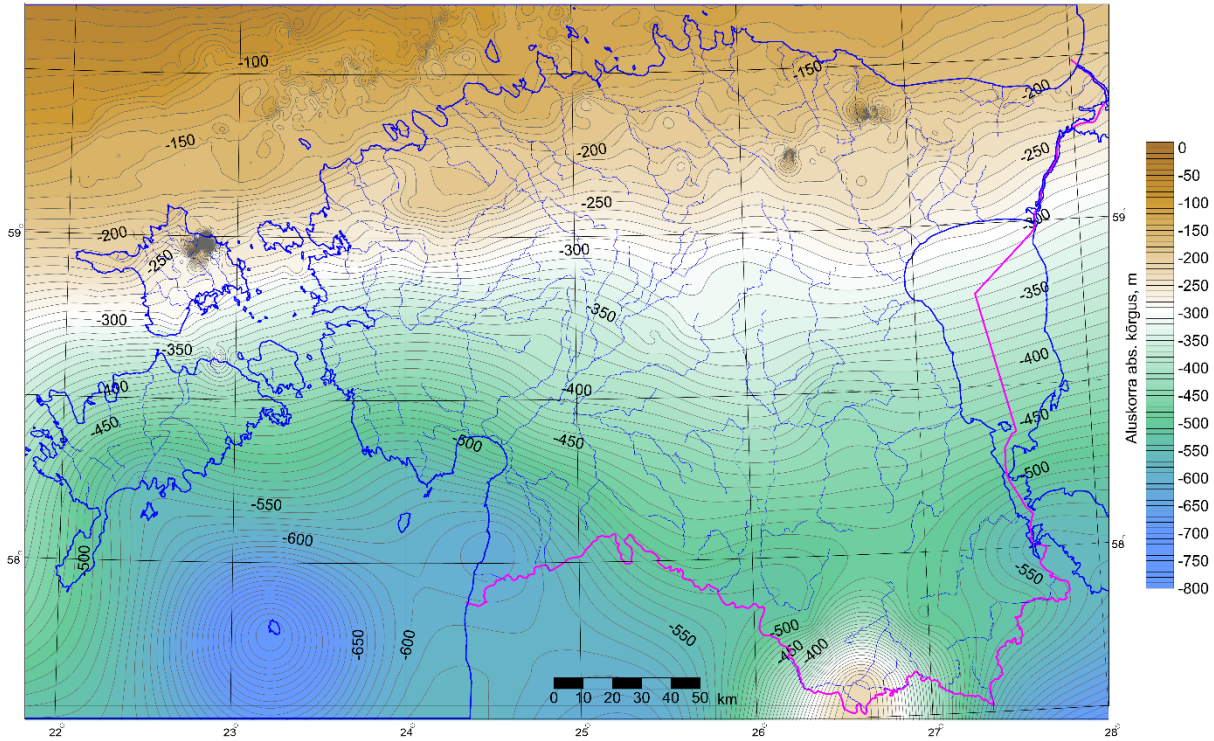


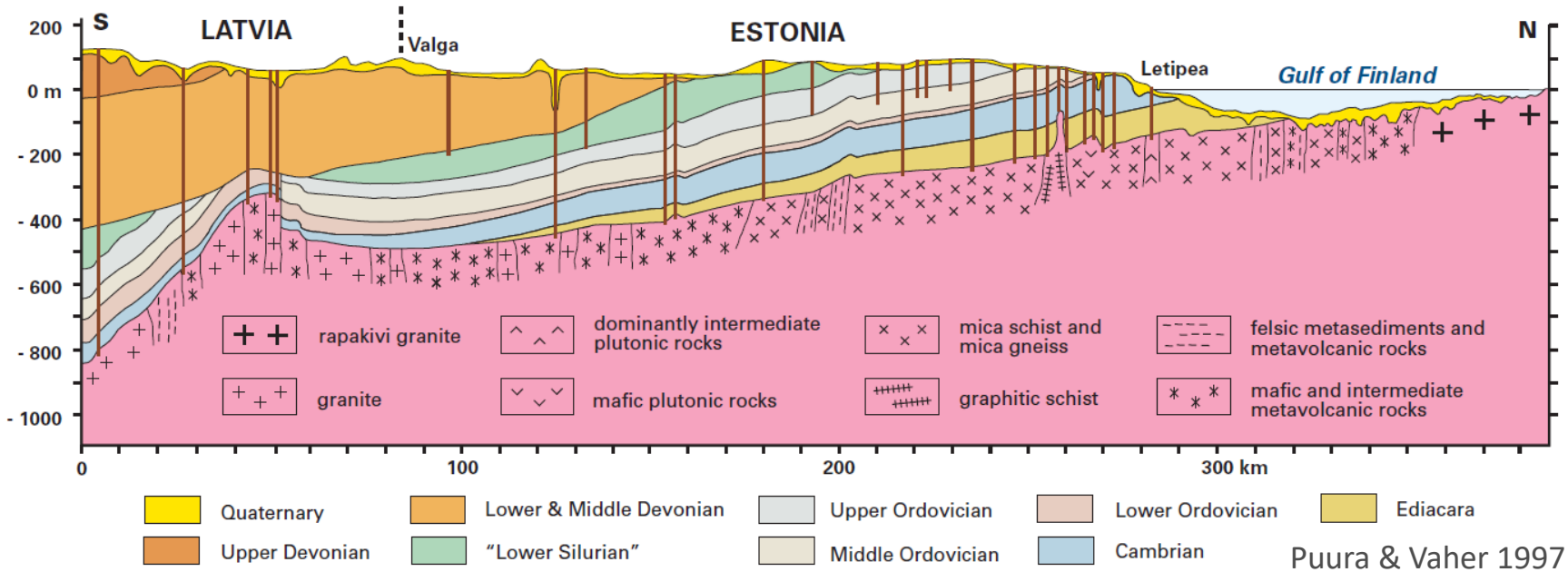
Bogdanova et al. 2015


400000
500000
600000
700000
6600000
6500000
6400000
Neemre
Naissaare
Ereda
Talljnn zone
Tapa zone
Alutaguse zone
Märjamaa
West Estonian zone
Saaremaa tectonic zone
Paldiski - Pskov tectonic zone
South Estonian zone
Riga pluton
Legend
Drill holes intersecting crystalline rocks
Lithology
Amphibole gneiss and amphibolite
Anothosite
Biotite gneiss
Gabbro
Granite
Quartz monzodiorite
Quartz monzonite
Pyroxene gneiss
Quartz feldspar gneiss
Rapakivi granite
Mica gneiss
0
25
50 km

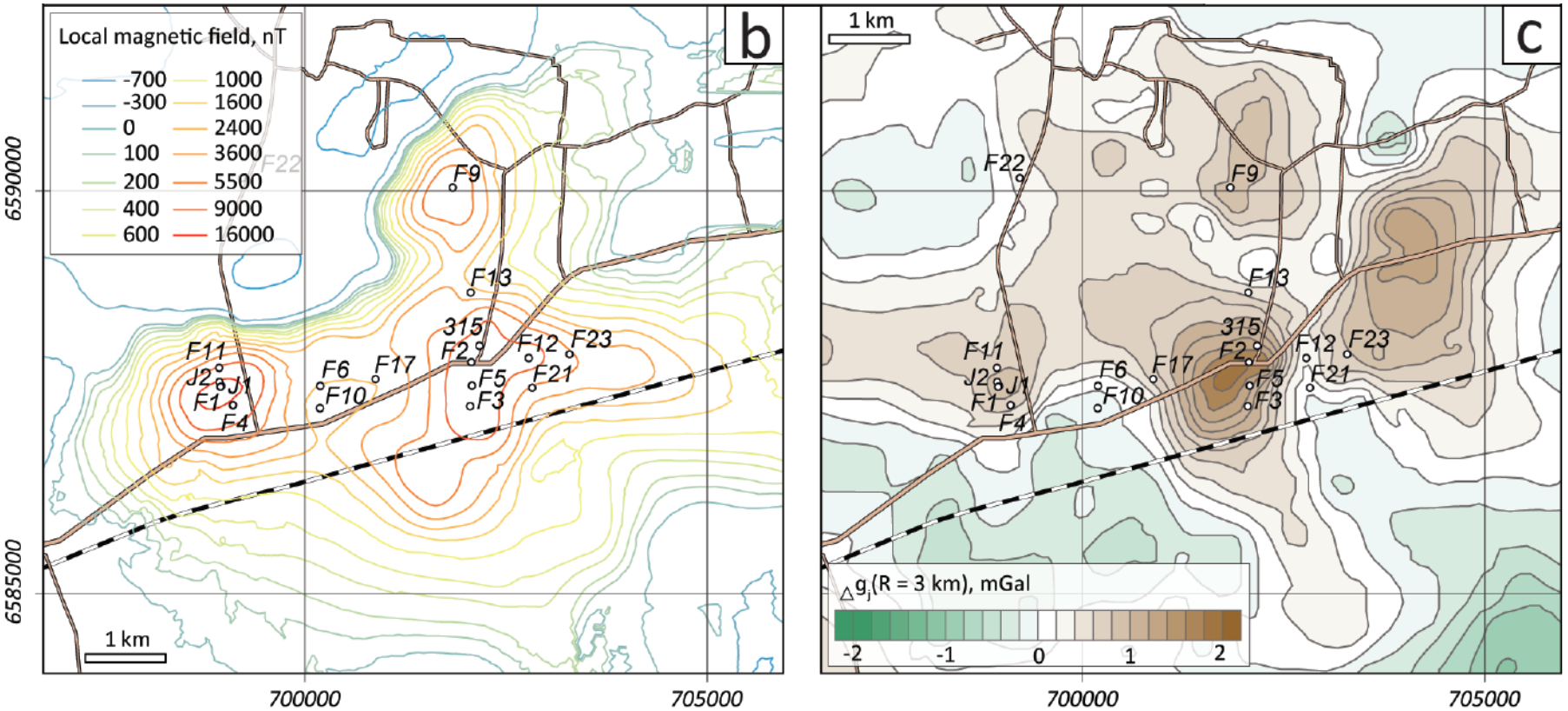

Sum (Cu, Pb, Zn), %
> 0.9
0.3 - 0.9
0.09 - 0.3
0.05 - 0.09
<0.05
Cu
Pb
Zn
Iron ore
Naissaare
Neeme
Tallinn zone
Tapa zone
Alutaguse zone
Ereda
Märjamaa
West Estonian zone
Saaremaa tectonic zone
Paldiski - Pskov tectonic zone
South Estonian zone
Riga pluton
6600000
6500000
6400000
400000
500000
600000
700000
Metamorphic rocks
Amphibolite gneiss and amphibolite
Anortosite
Biotite gneiss
Gabbro
Granite
Quartz montzodiorite
Pyroxene gneiss
Quartz feldspar gneiss
Mica gneiss
Plutonic rocks
Quartz montzonite
Rapakivi granite
Shear or thrust zones in the basement


172.49 a. F188-25
173.0
40
50
60
70
80
90
100



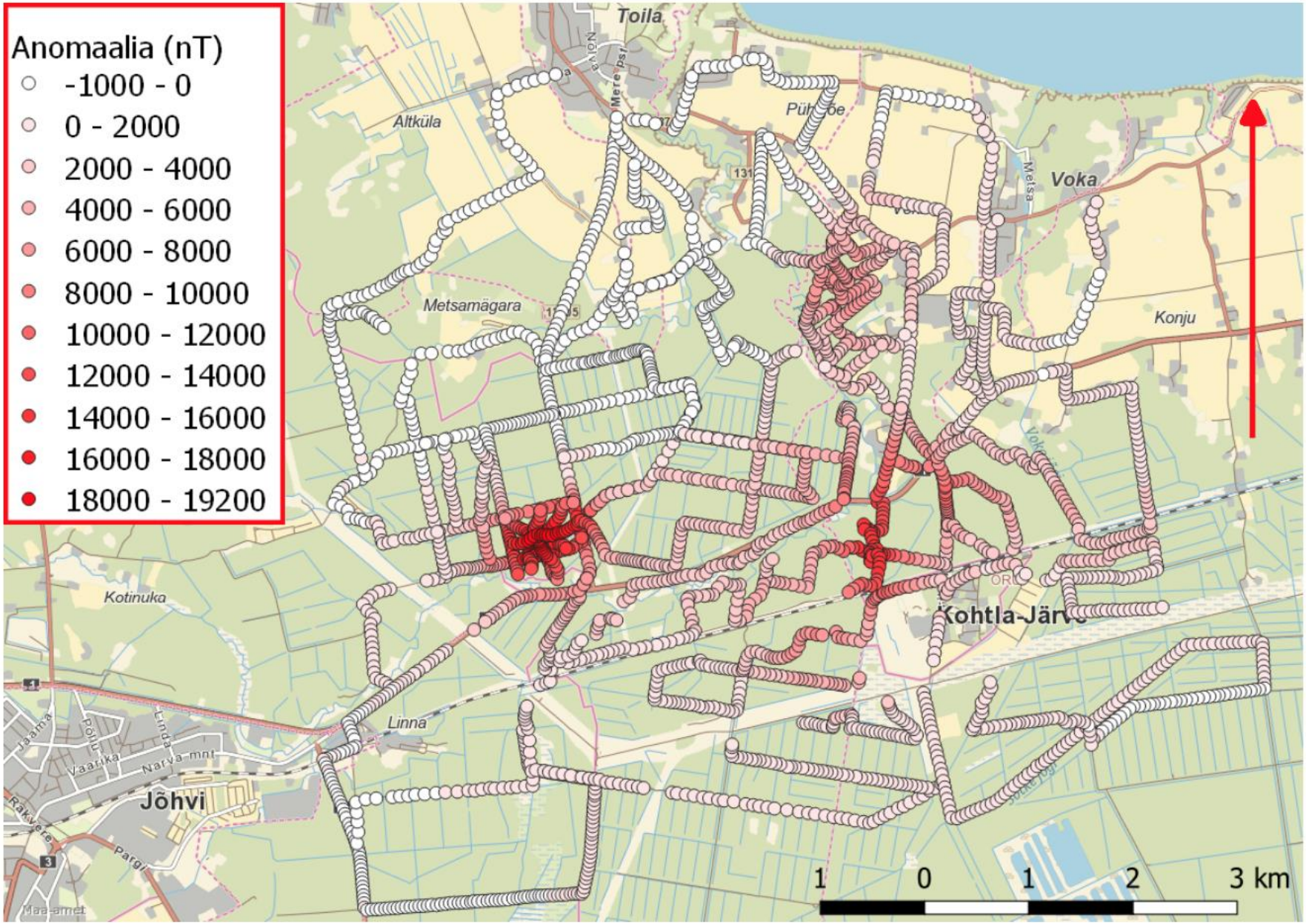


Puura & Vaher 1997

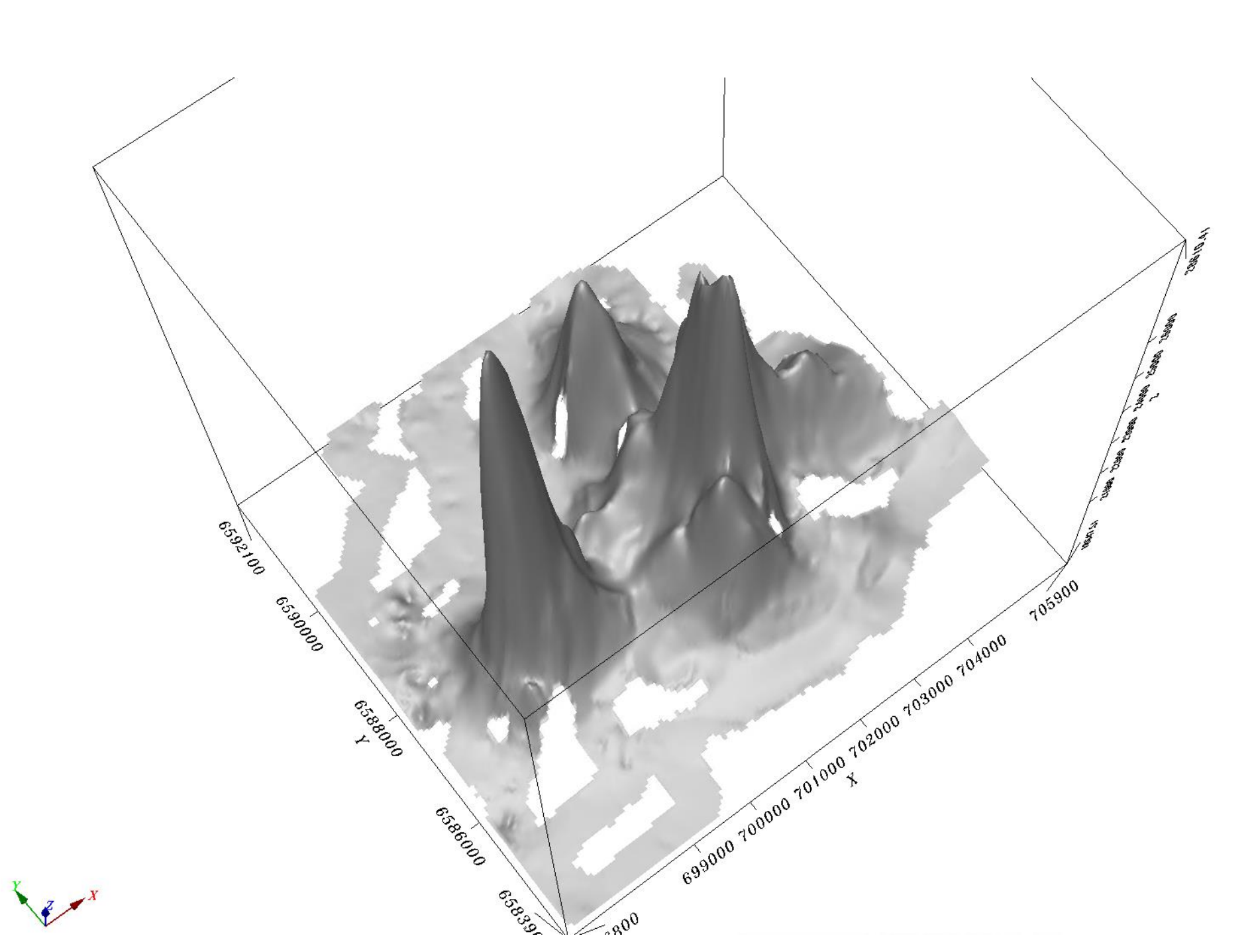


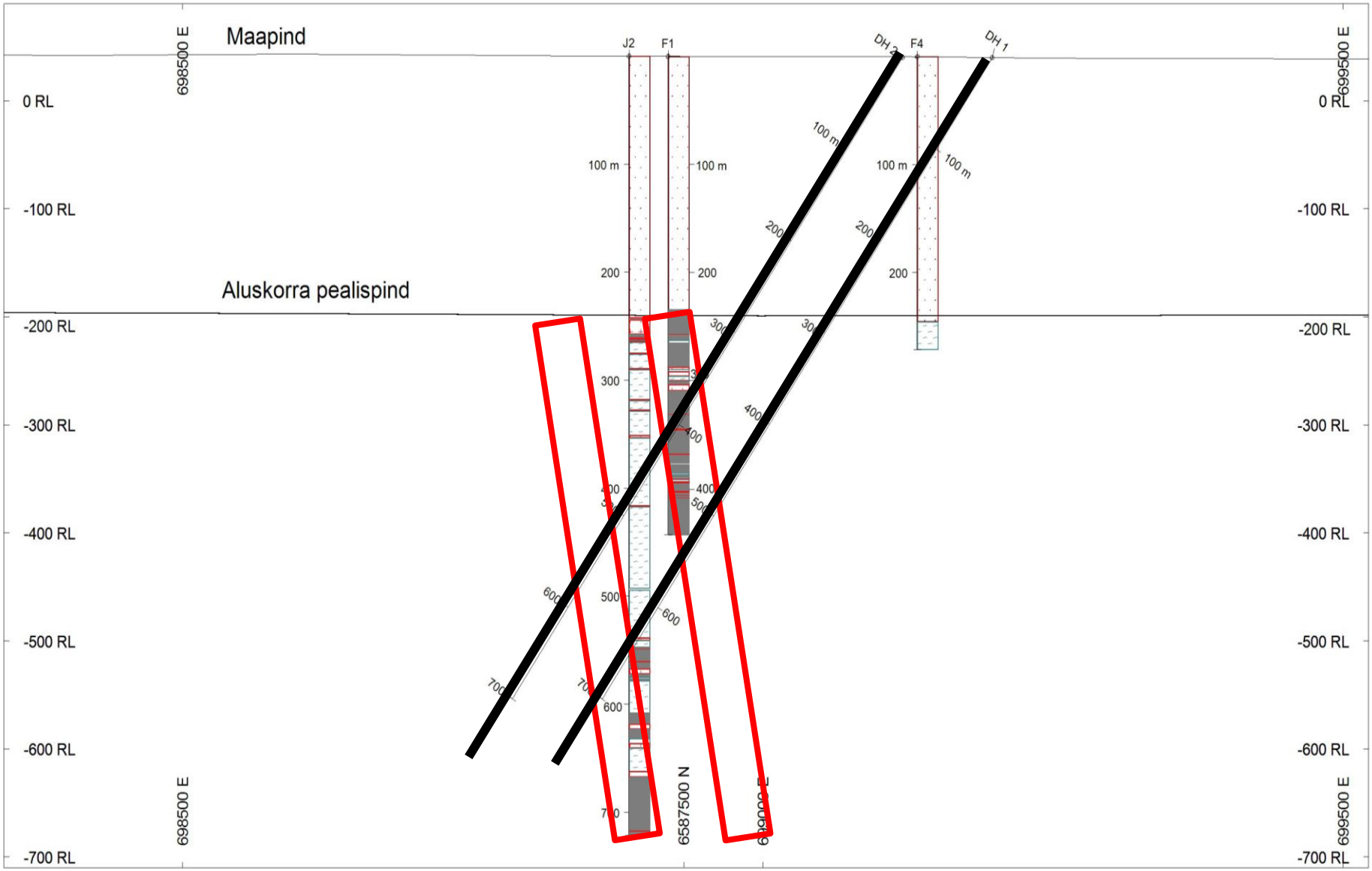
Soesoo et al. 2020

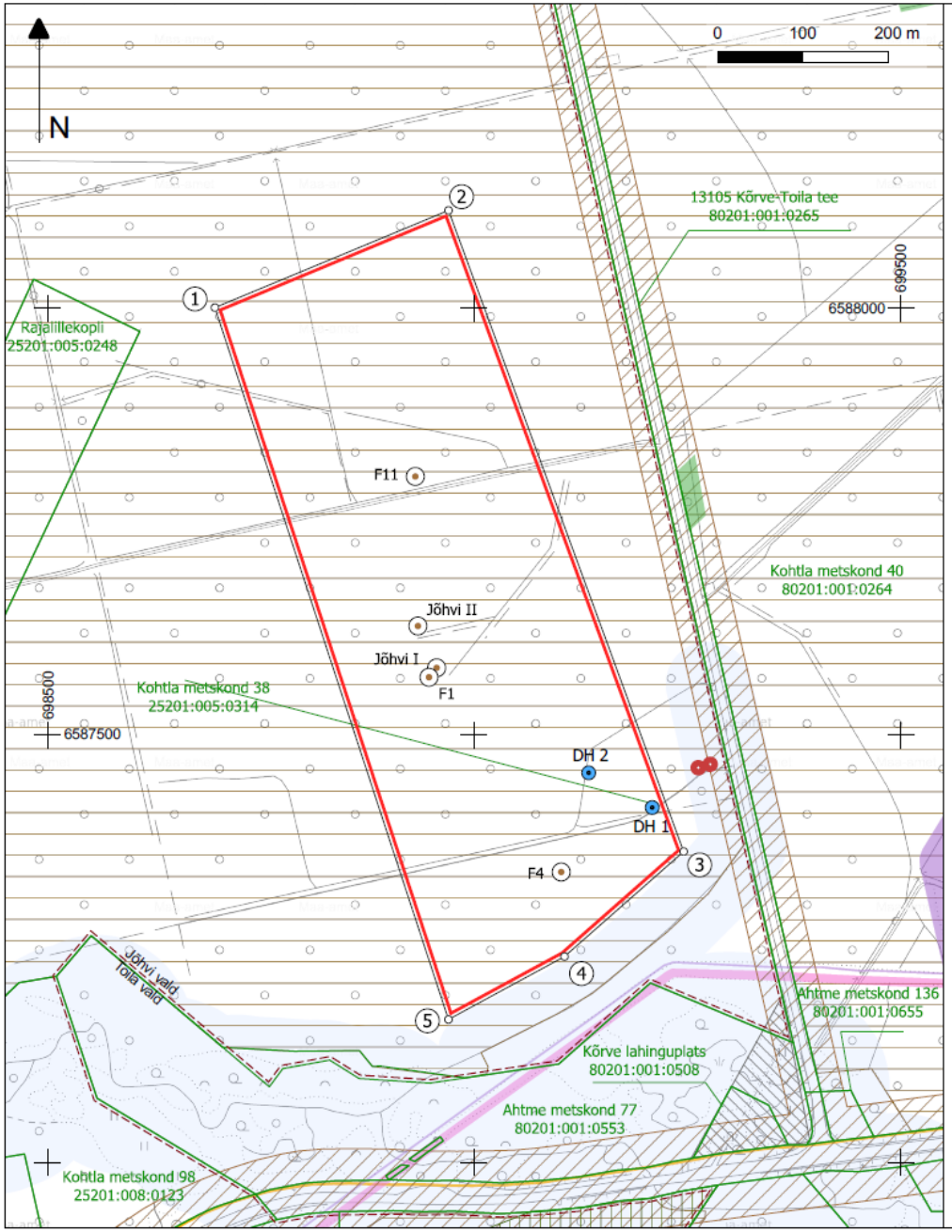
Anomaalia	Proovide arv	Fe_2O_3, %
Lääne	28	34.4
Ida	43	26.5
Põhja	12	23.4



Joonis 2. Maapealsete magnetvälja mõõtmiste punktid ja anomaalia väärtused. Taustaks Maa-ameti baaskaart (2019).

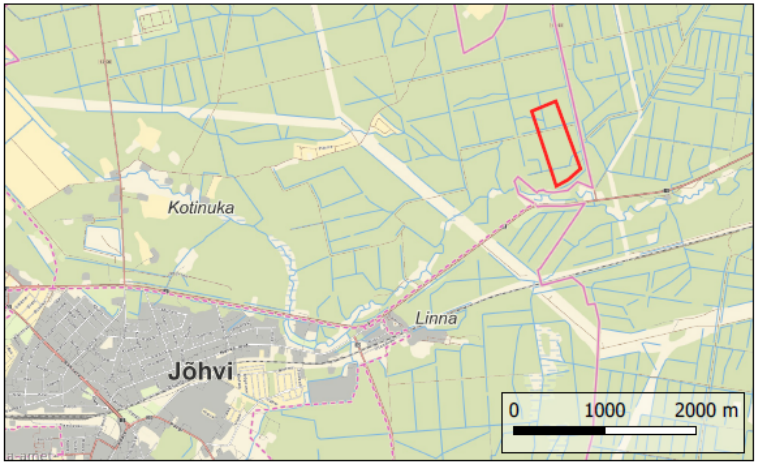

6592100
6590000
6588000
Y
6586000
699000 700000 701000 702000 703000 704000
X
705900
Y
Z
X


Maapind
Aluskorra pealispind
J2
F1
F4
DH 2
DH 1
0 RL
-100 RL
-200 RL
-300 RL
-400 RL
-500 RL
-600 RL
-700 RL
698500 E
699500 E
6587500 N
100 m
200
300
400
500
600
700



Location plan 1:50 000

Base map sheet 6444 (Kohtla-Järve)



Leppemärgid

- 2 — Investigation area
- Location of planned drill hole
- Existing drill holes
- Kohtla 80201:001 — Land unit
- Area of endangered species
- Possible area of endangered species
- Restricted zone of water body
- Protection zone for road
- Historical monument
- Power lines
- Gas pipes
- Communication lines
- Border of municipality
- Geodetic reference point
- Land development area

Nr	X	Y
1	6588000.72	698696.07
2	6588114.49	698969.92
3	6587363.97	699245.50
4	6587241.06	699105.80
5	6587167.38	698969.85

Area 26,34 ha

NOTES:
1. Coordinates L-Est'97 system.
2. Base-map: Land Board

EESTI GEOLOOGIATEENISTUS
Tel: 630 2333
E-post: info@egt.ee
www.egt.ee
F. R. Kreutzwaldi 5
44314 Rakvere

Ida-Viru County, Jõhvi Municipality

JÕHVI-1 MAGNETANOMAALIA UURINGURUUM

Annex 1

Scale: 1 : 5000
Size A3

Compiled by: Siim Nirgi *allkirjastatud digitaalselt*

Signed by: Heikki Bauert *allkirjastatud digitaalselt*

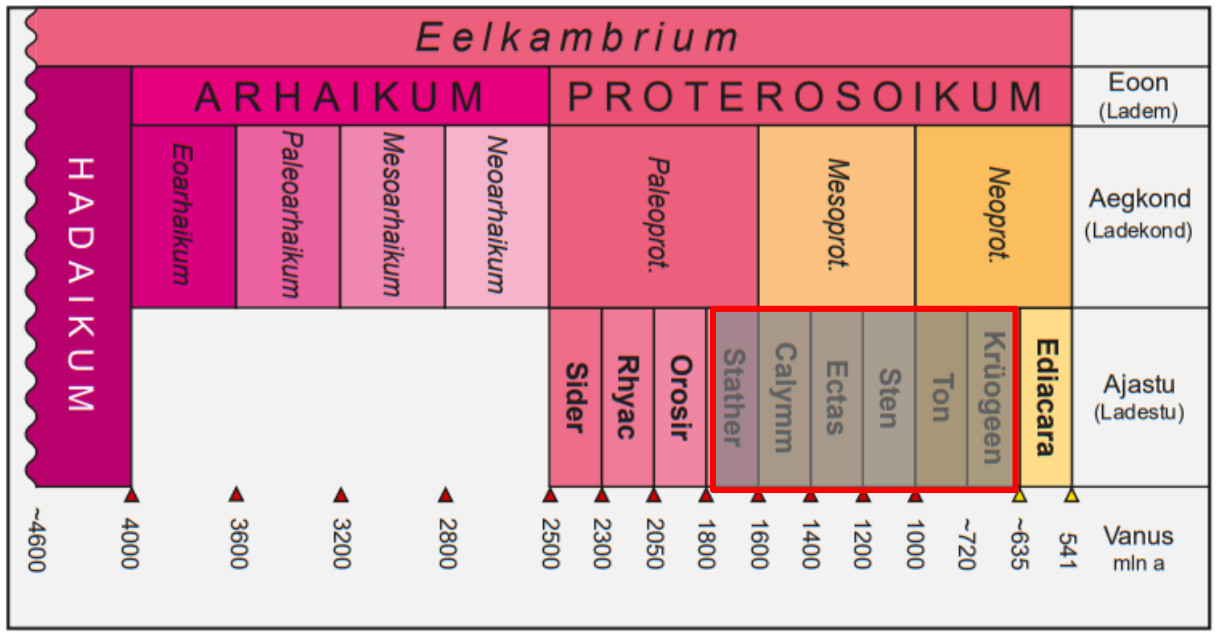
Application for investigation permit

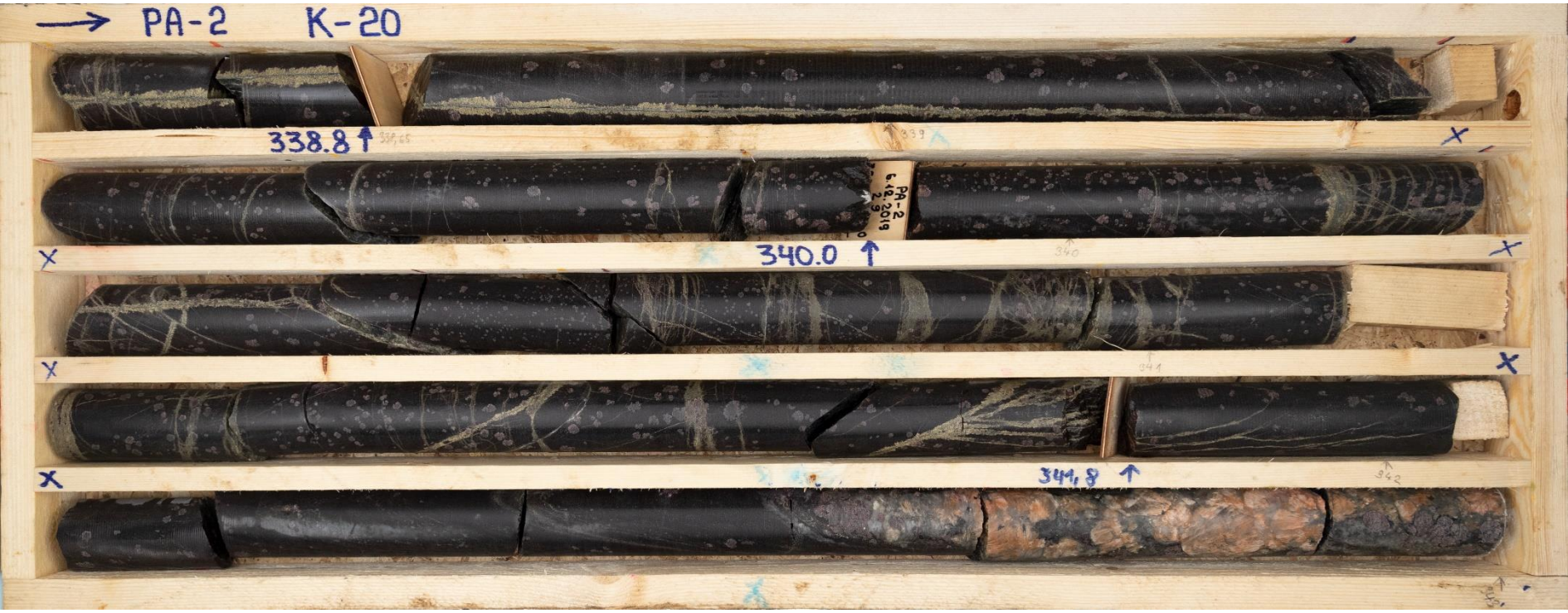
PLAN OF INVESTIGATION AREA

Compiled: 13.03.2019

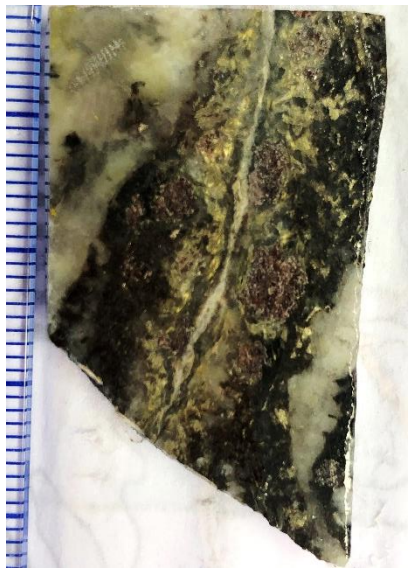



PA-1 K-68
X
X
275,9↑

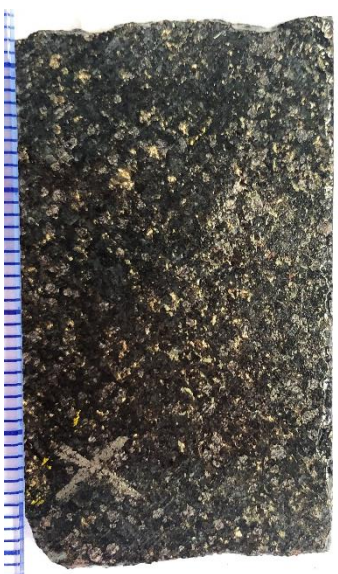

Eelkambrium
HADAIKUM
ARHAIKUM
Eoarhaikum
Paleoarhaikum
Mesoarhaikum
Neoarhaikum
PROTEROSOIKUM
Paleoprot.
Mesoprot.
Neoprot.
Sider
Rhyac
Orosir
Stather
Calymm
Ectas
Sten
Ton
Krüogeen
Ediacara
Eoon (Ladem)
Aegkond (Ladekond)
Ajastu (Ladestu)
Vanus mln a
~4600
4000
3600
3200
2800
2500
2300
2050
1800
1600
1400
1200
1000
~720
~635
541


PA-2 K-20
338.8
340.0
341.8
PA-2
6.12.2019



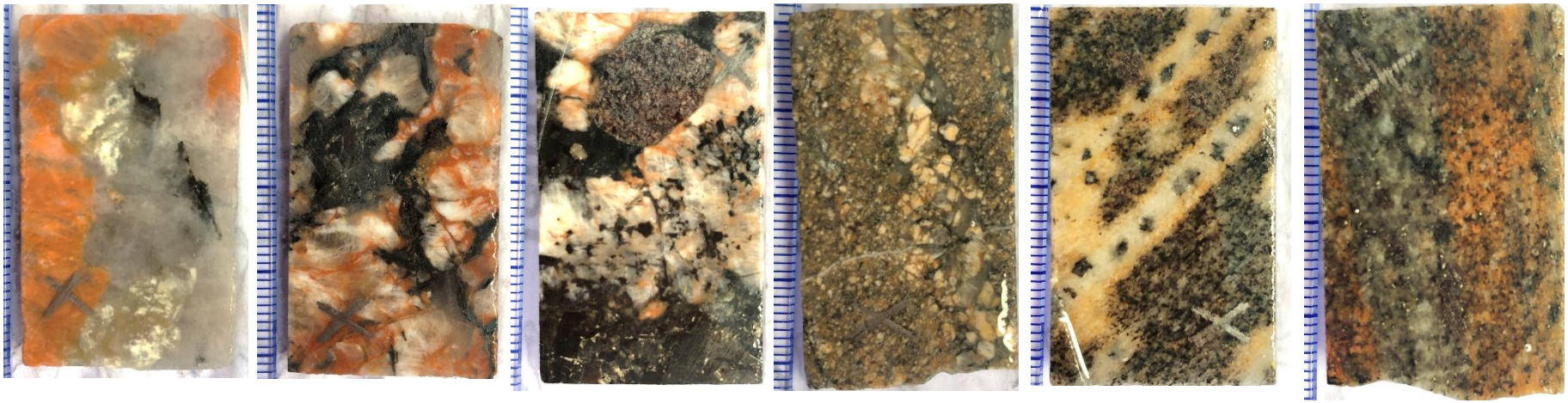


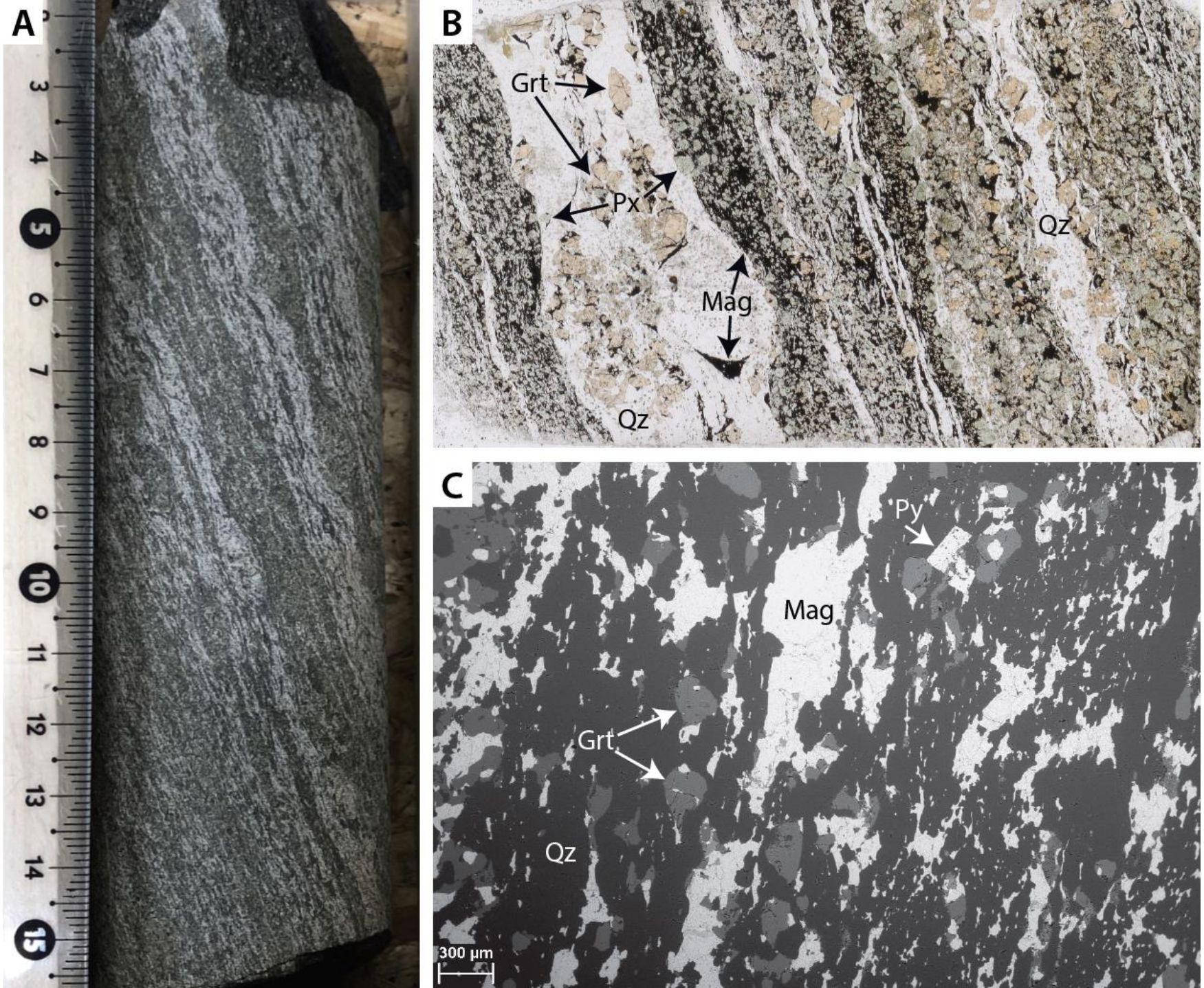


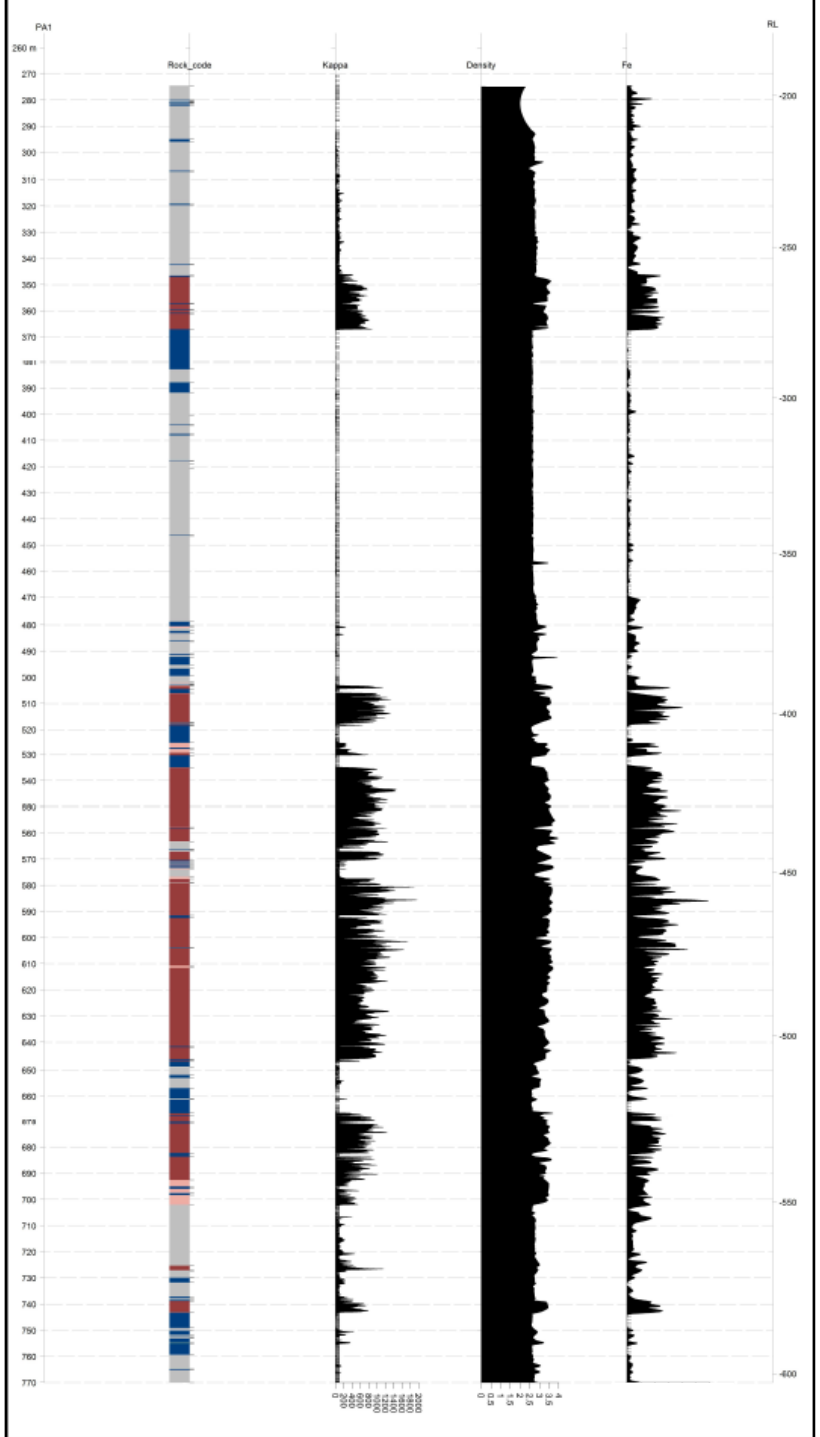


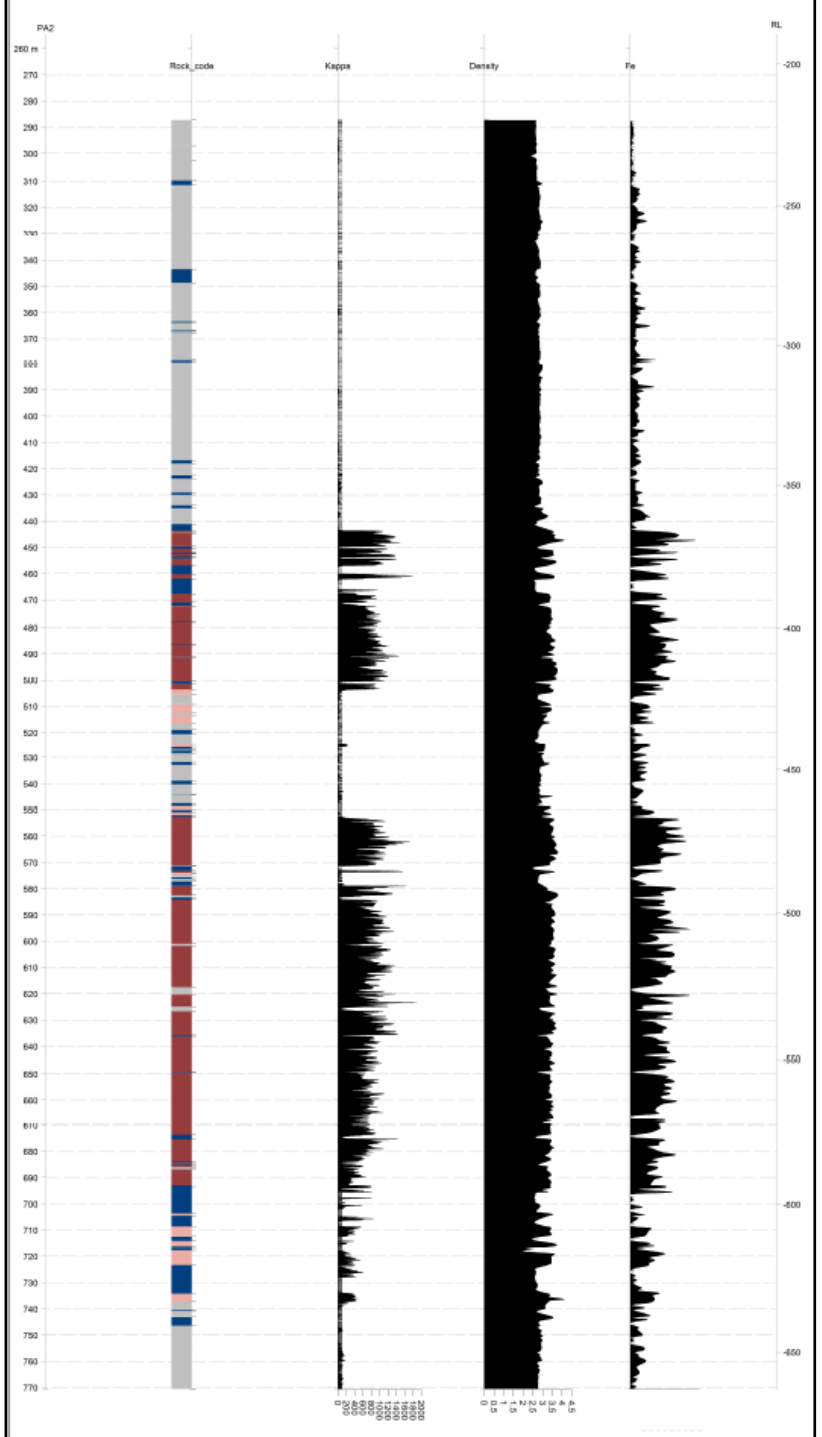



PA-2
K-65
551,8



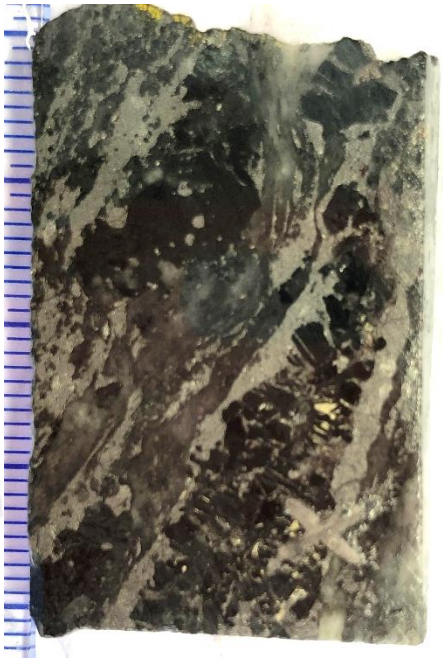

A
B
Grt
Px
Qz
Mag
Qz
C
Py
Mag
Grt
Qz
300 µm

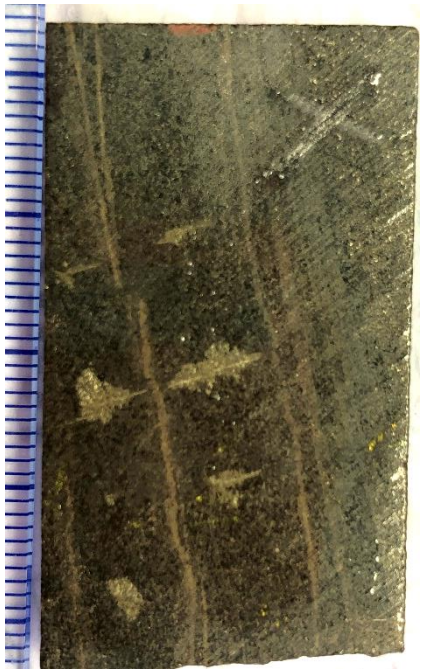

PA1
Rock_code
Kappa
Density
Fe
RL


PA2
Rock_code
Kappa
Density
Fe
RL

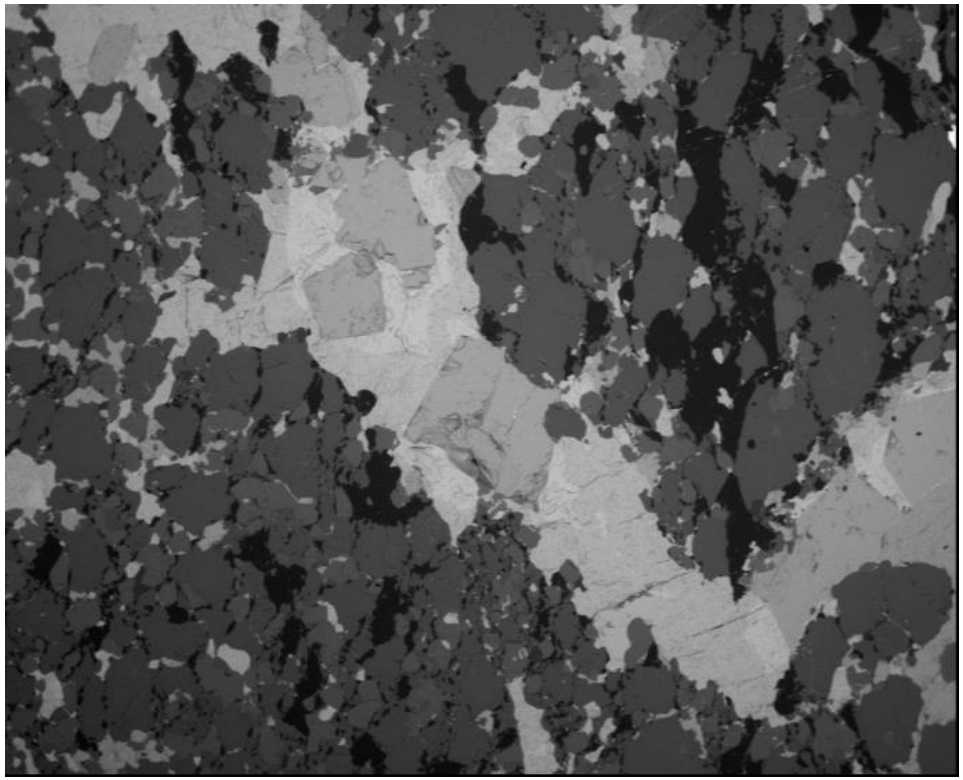




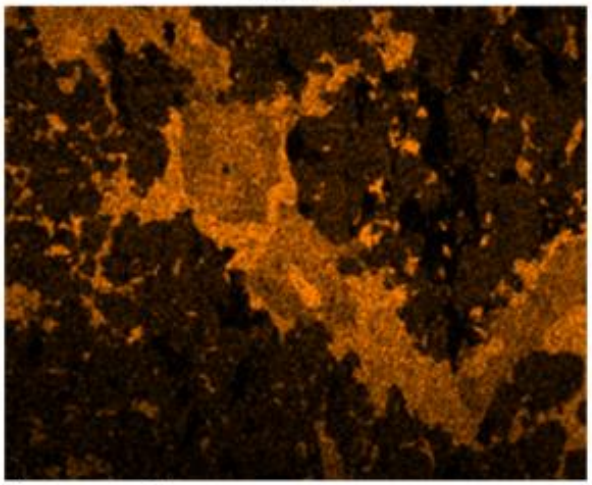




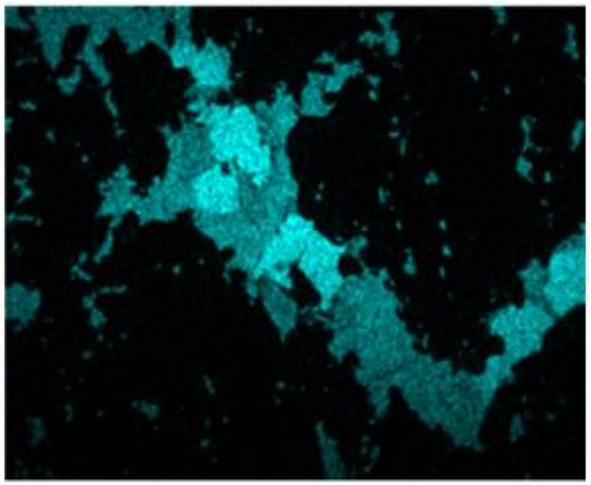




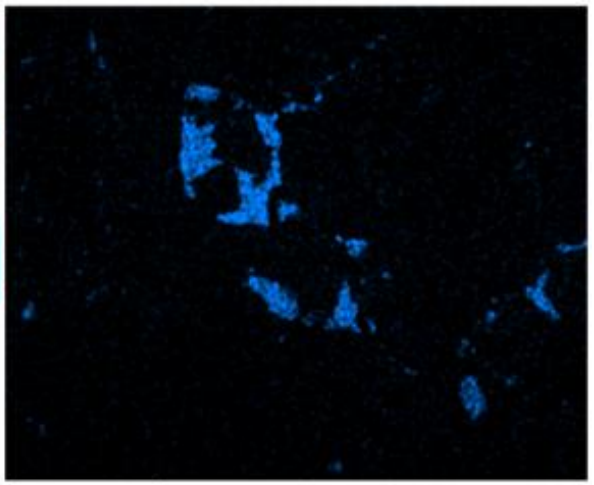
Fe Kα1



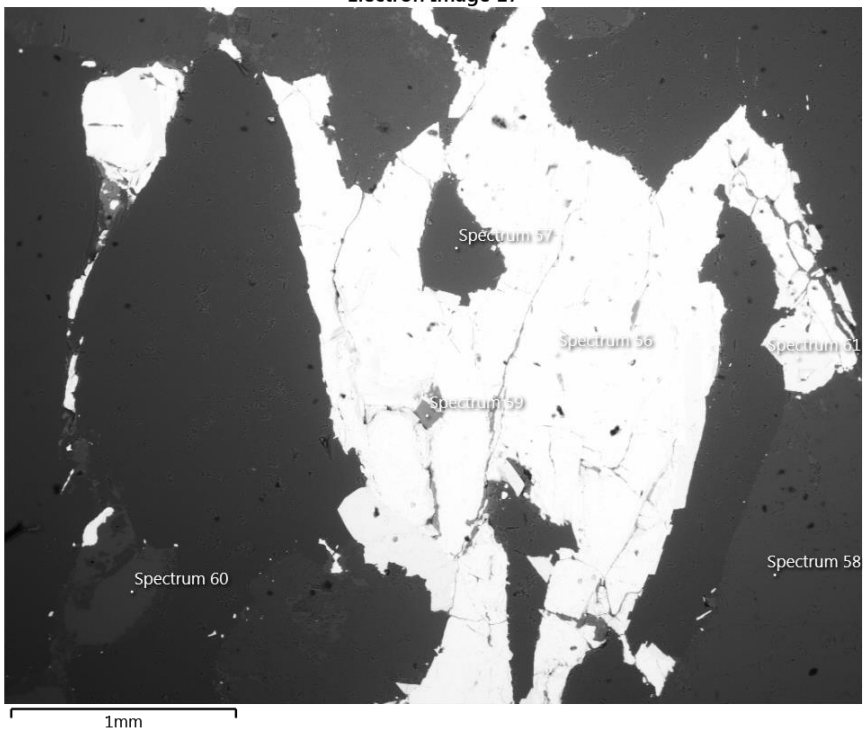
S Kα1



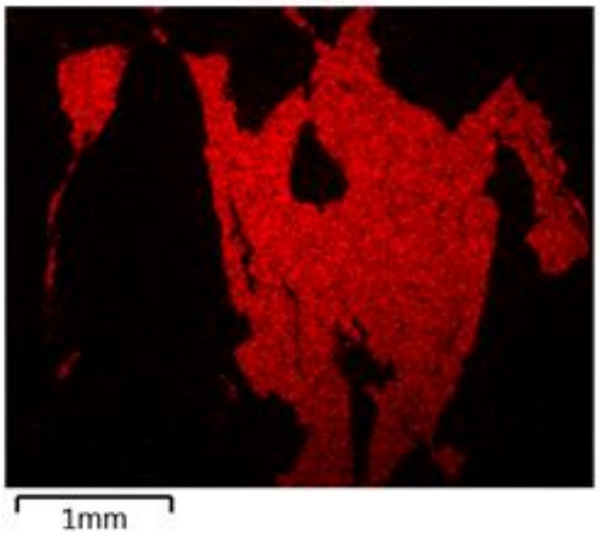
Cu Kα1



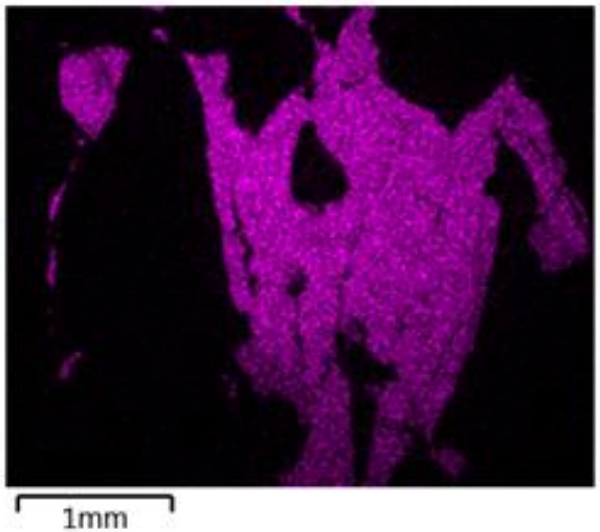
Electron Image 17

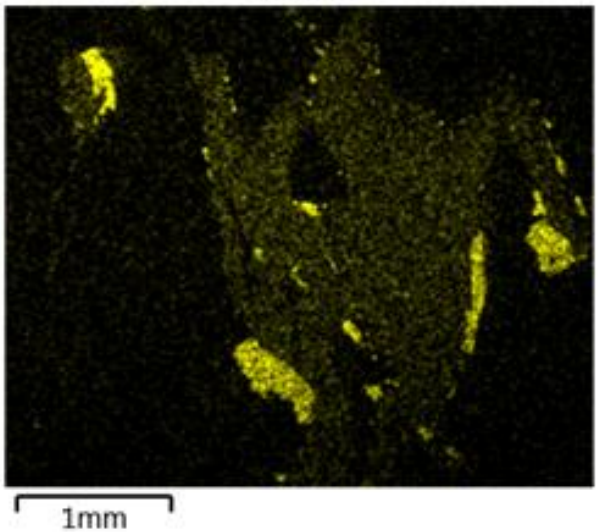


Fe Kα1



As Kα1





Eesti
Geoloogiateenistus

Tänan!

Siim Nirgi