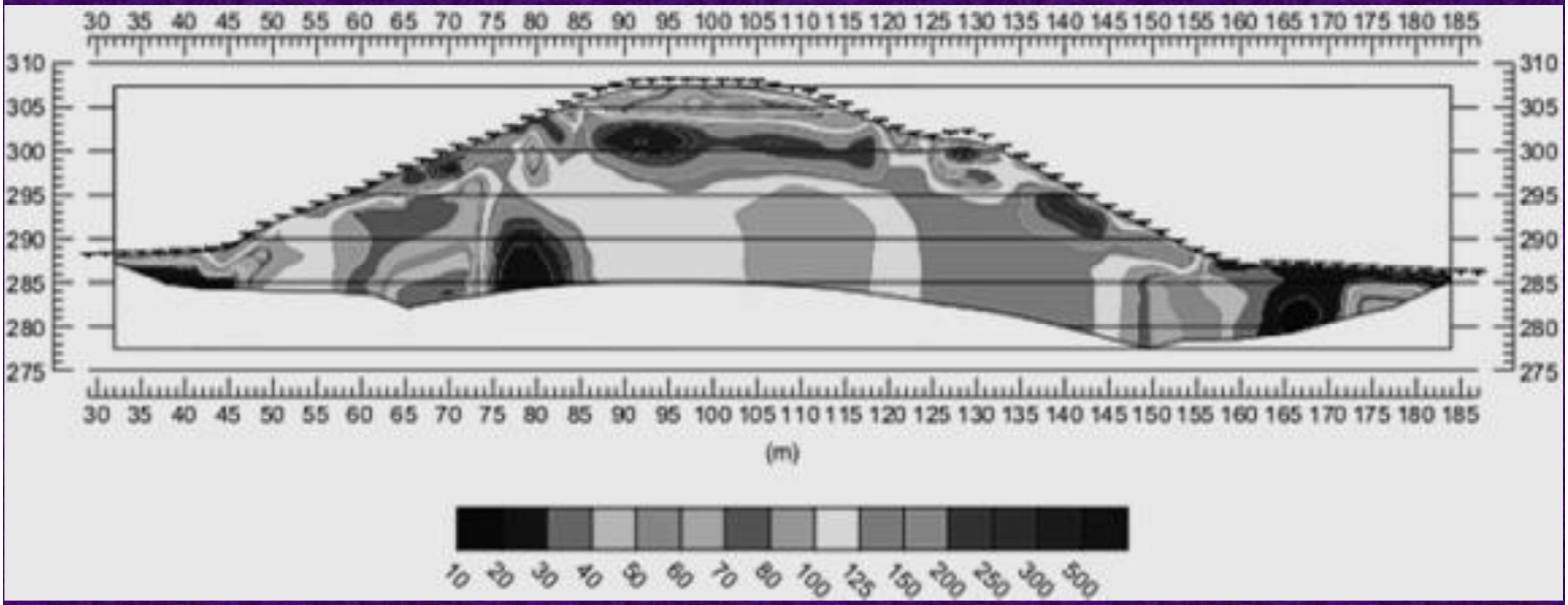
GEOFYZIKÁLNÍ METODY PŘI PRŮZKUMECH POHŘEBIŠŤ



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GEOFYZIKÁLNÍ METODY PŘI PRUZKUMU POHŘEBIŠŤ

druhy známých a předpokládaných antropogenních objektů a aktivit na lokalitě

Ploché kostrové hroby

- izometrické zahloubené objekty větších rozměrů několika m v rámci sídliště využité ku pohřbívání (pohozené kostry či jejich části, skrčenci,…) **M** (DK,EO,EM)

- protažené hrobové jámy rozměrů do 2 m (řadové či skupinové hroby,…) **M** (DK)

Ploché žárové hroby

- izometrické zahloubené objekty menších rozměrů zpravidla do 1 m s žárovým způsobem pohřbívání (jámy a nádoby s vypáleným materiálem) **M**

Skříňkové hroby

- izometrické resp. protažené zahloubené hrobové jámy s kamennou konstrukcí či obložením **M** (EO,EM,DK)

Hrobové komory s ohrazením

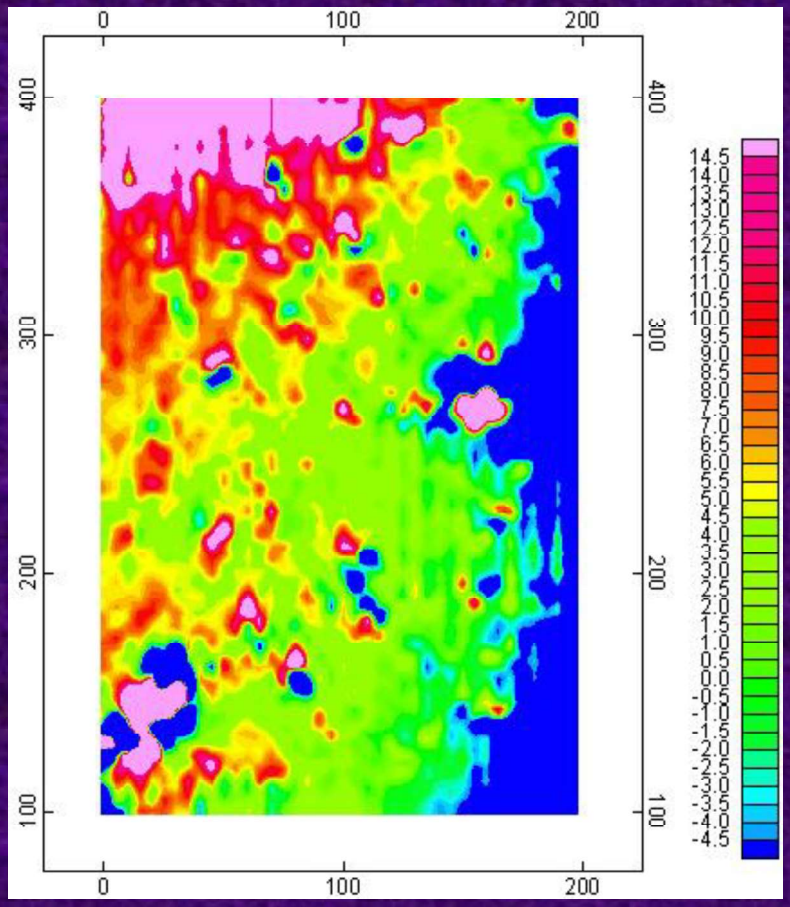
- zahloubené hrobové komory s obvodovými žlábky či příkopy **M** (EO,EM,DK)

Mohylníky

- zahloubené i nezahloubené hrobové komory s nadzemním kamenným až hlinitým pláštěm (mohyly s kamennými věnci, sypané hlinité mohyly) **EO,EM,M,DK** (R,T)
- zahloubené ploché hroby, obvodové příkopy a žlaby mohyl **M** (EO)
- liniové komunikace na mohylnících (EO,EM,R,M)

Hrobky

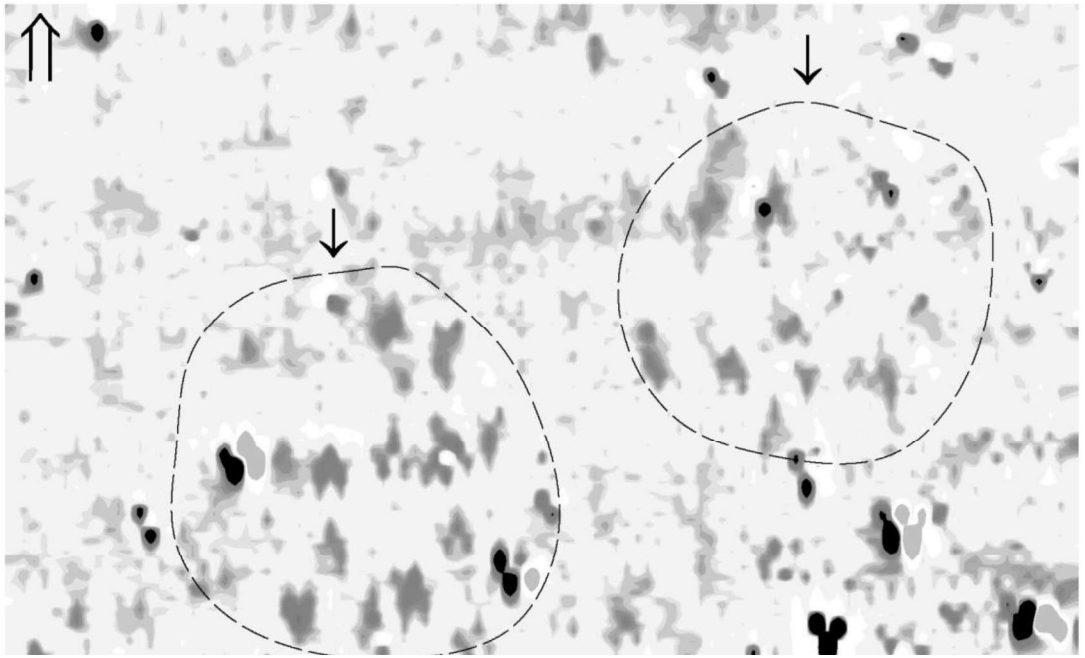
- podpovrchové nezaplněné (duté) objekty a prostory s kamennou či cihlovou konstrukcí určené k pohřbívání **T,R,G,EM** (EO,M,S)

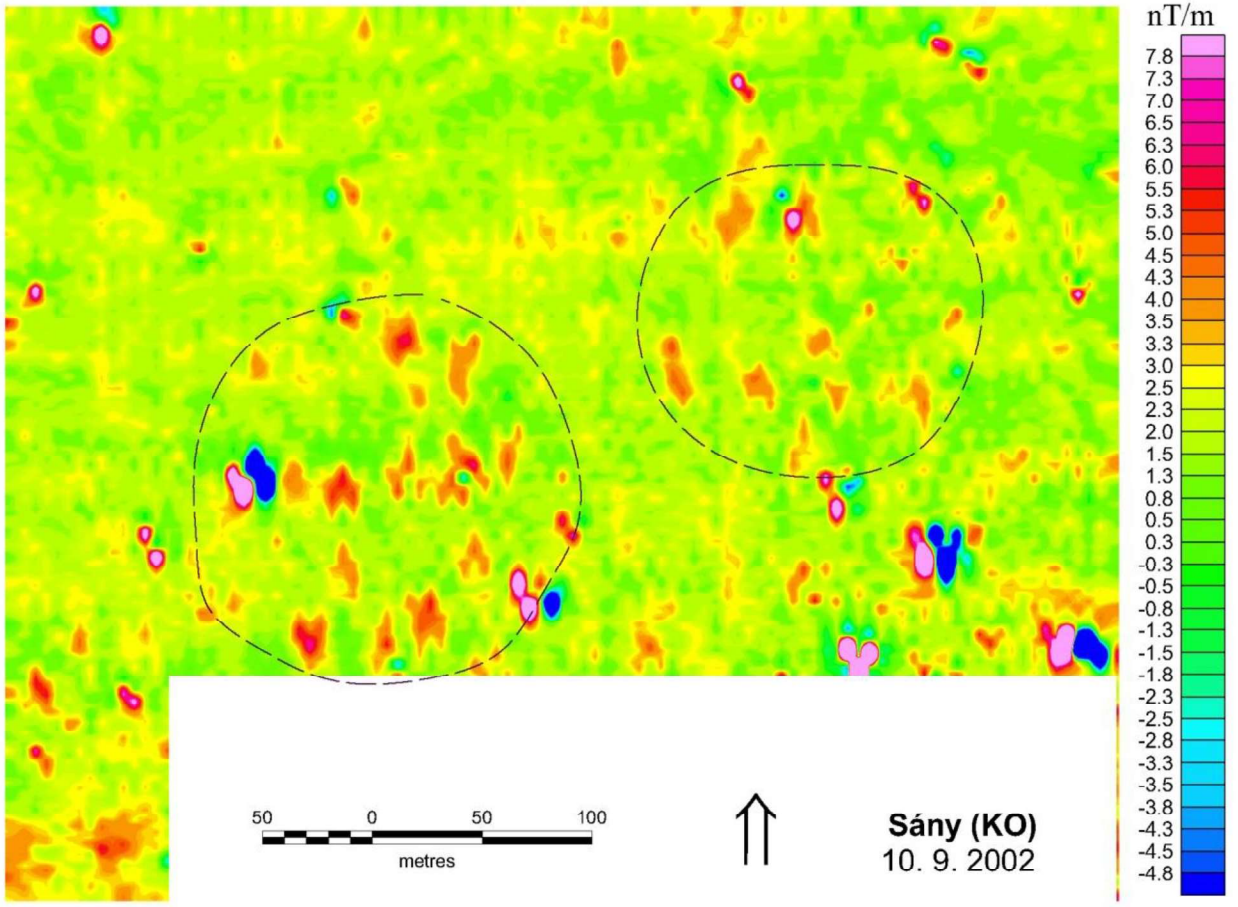


Plochá kostrová pohřebiště

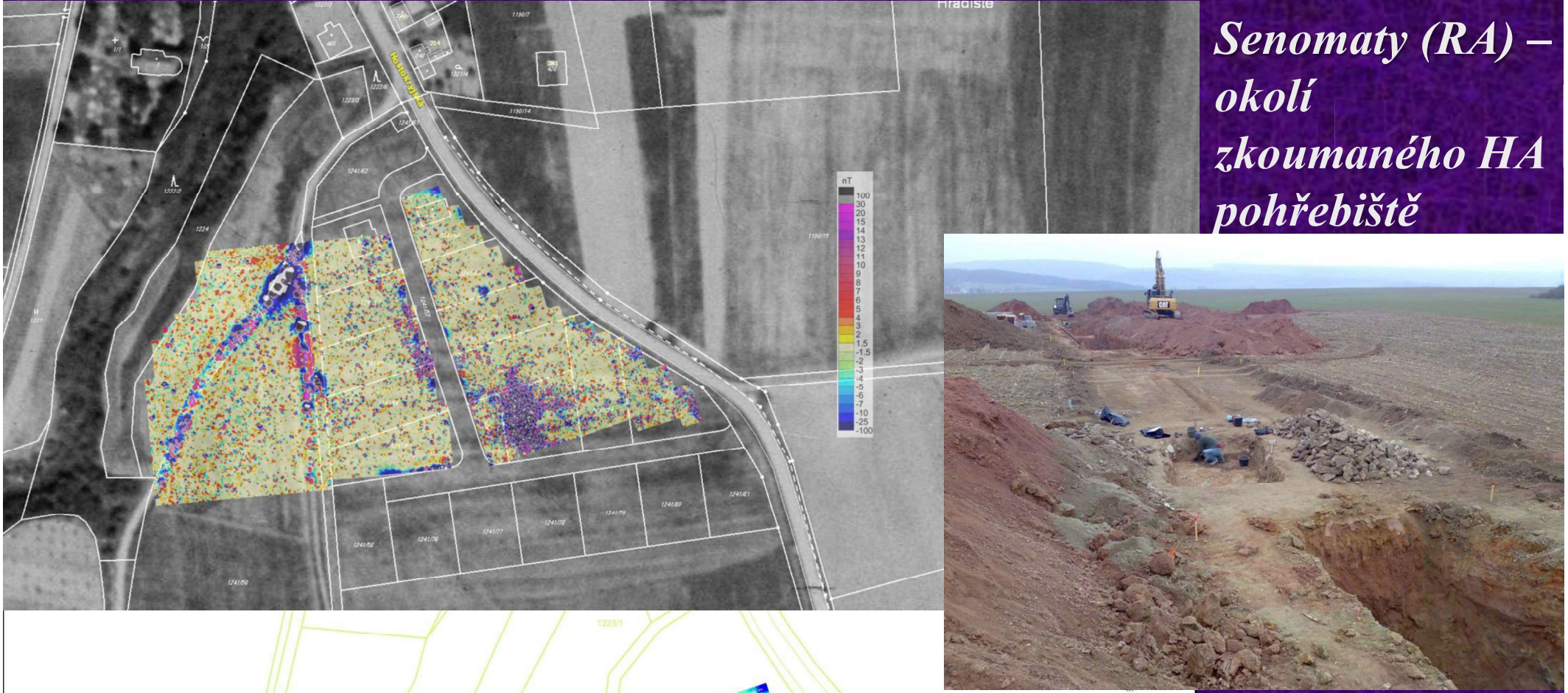
Sány (NB)

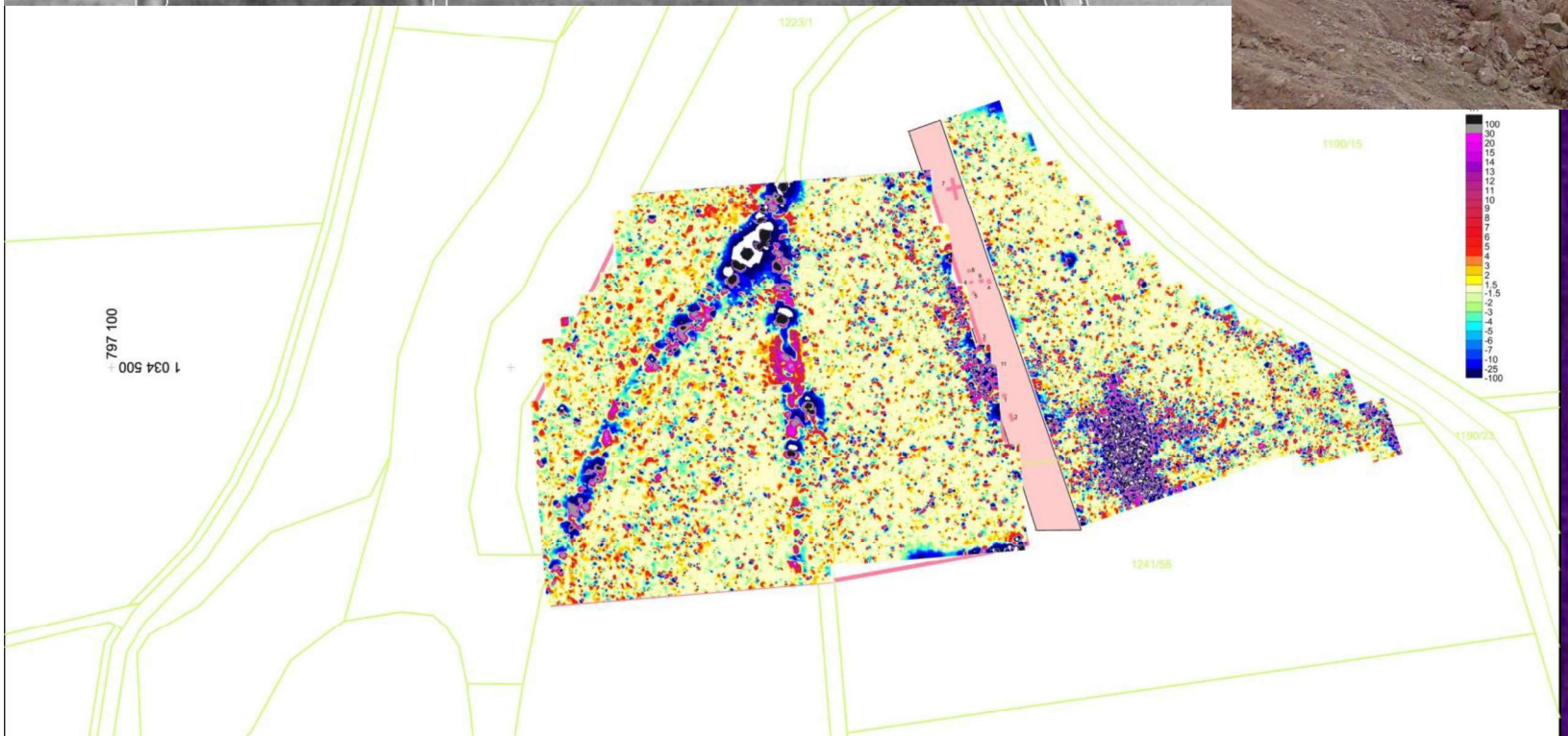



nT/m
7.8
7.3
7.0
6.5
6.3
6.0
5.5
5.3
5.0
4.5
4.3
4.0
3.5
3.3
3.0
2.5
2.3
2.0
1.5
1.3
0.8
0.5
0.3
-0.3
-0.5
-0.8
-1.3
-1.5

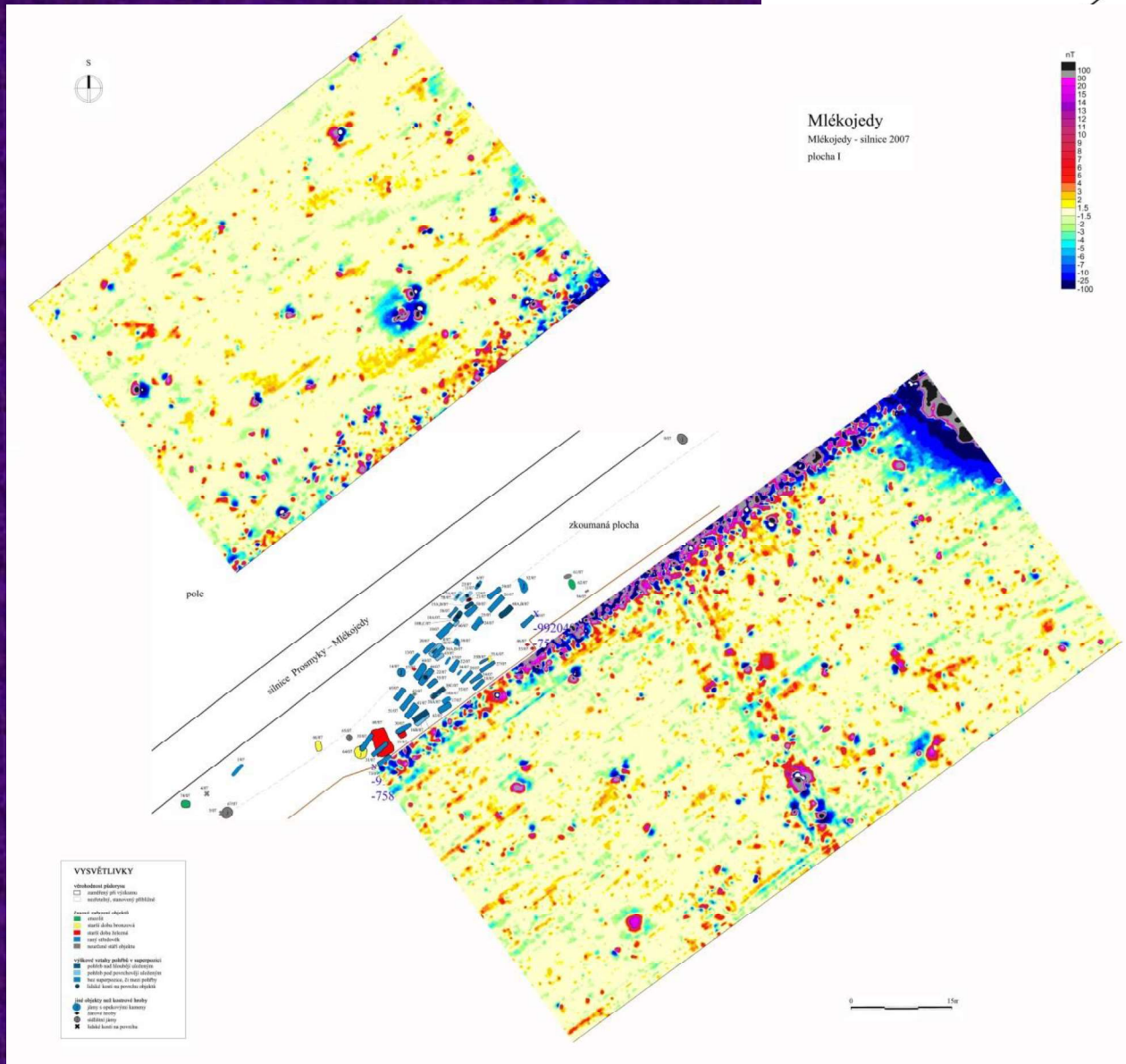

nT/m
7.8
7.3
7.0
6.5
6.3
6.0
5.5
5.3
5.0
4.5
4.3
4.0
3.5
3.3
3.0
2.5
2.3
2.0
1.5
1.3
0.8
0.5
0.3
-0.3
-0.5
-0.8
-1.3
-1.5
-1.8
-2.3
-2.5
-2.8
-3.3
-3.5
-3.8
-4.3
-4.5
-4.8
50
0
50
100
metres
Sány (KO)
10. 9. 2002

Senomaty (RA) – okolí zkoumaného HA pohřebiště

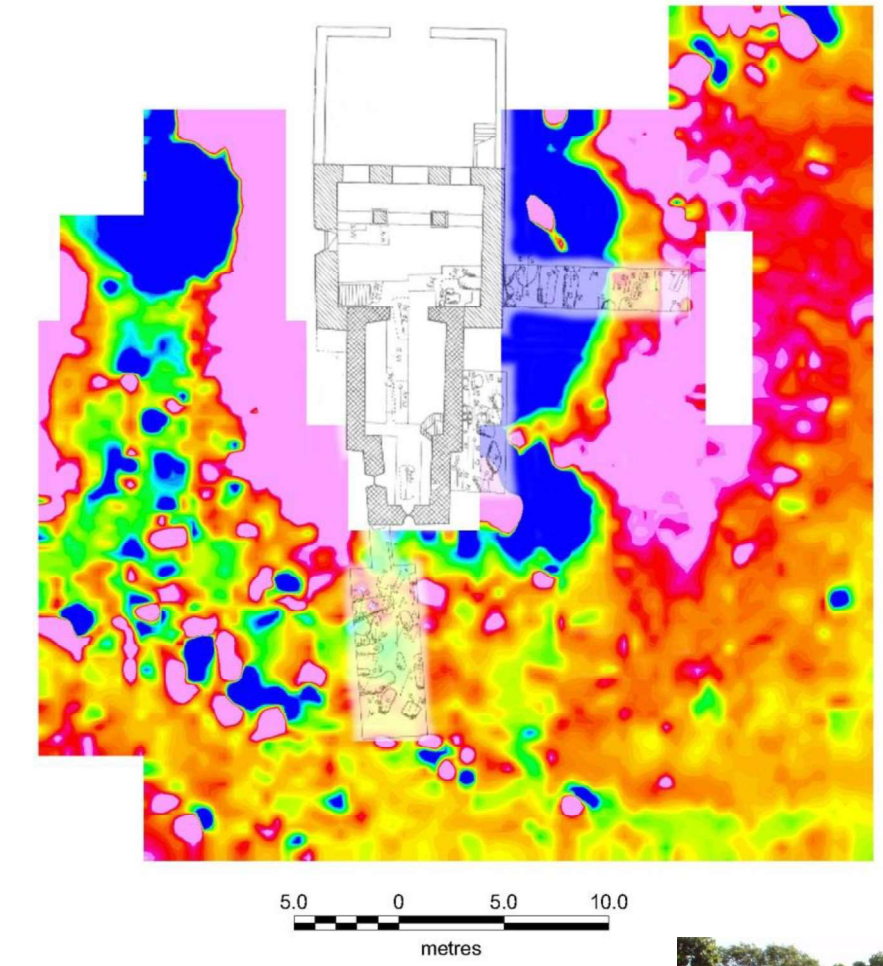


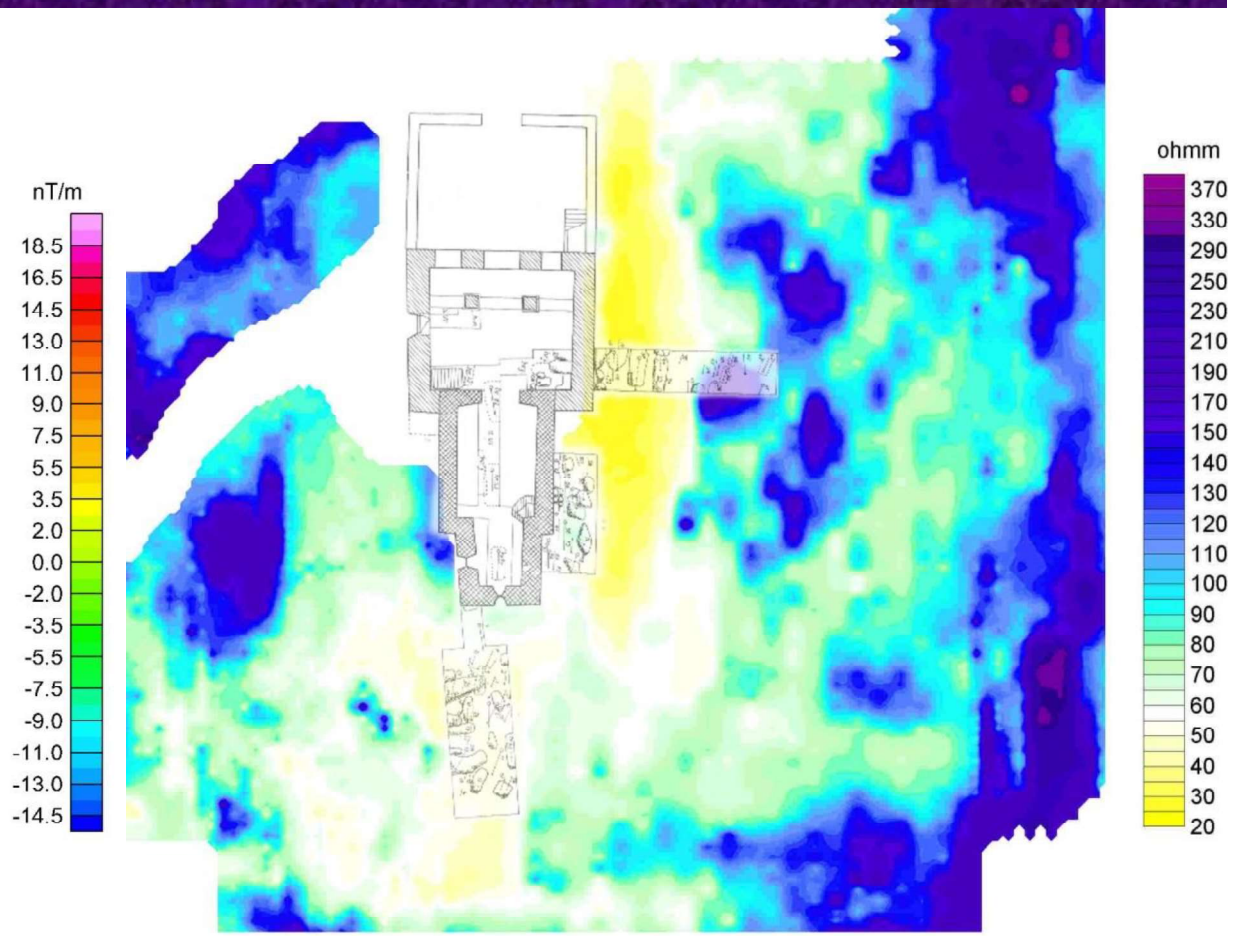


Mlékojedy (LT) – okolí zkoumaného RS pohřebiště

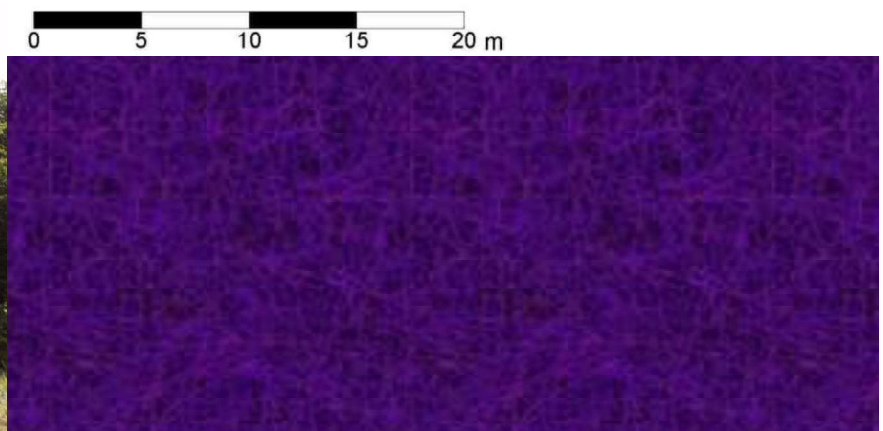


Kostolany p. T. (SK) – detekce narušení kolem kostela i rozsahu hrobů s kamennými deskami

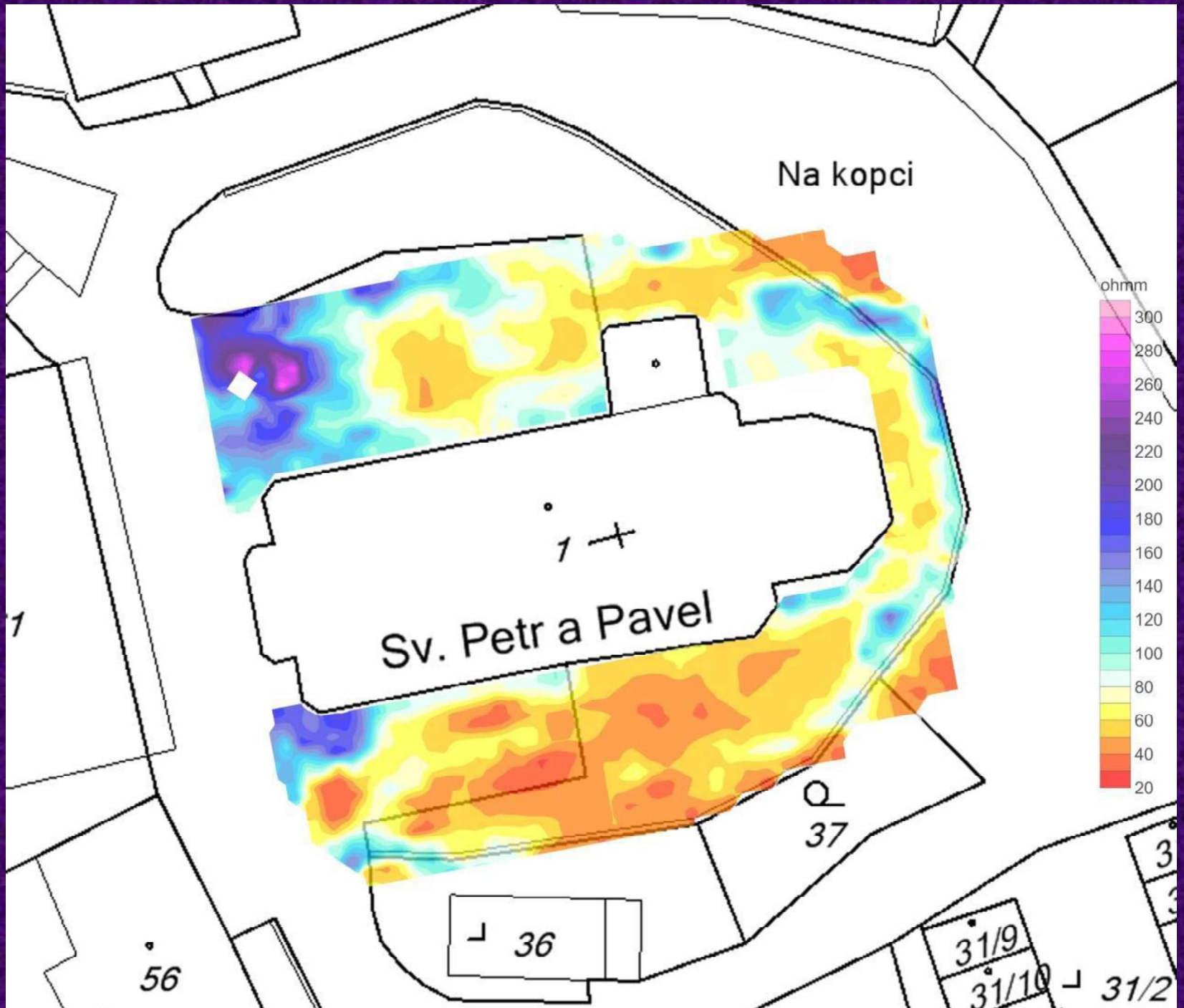




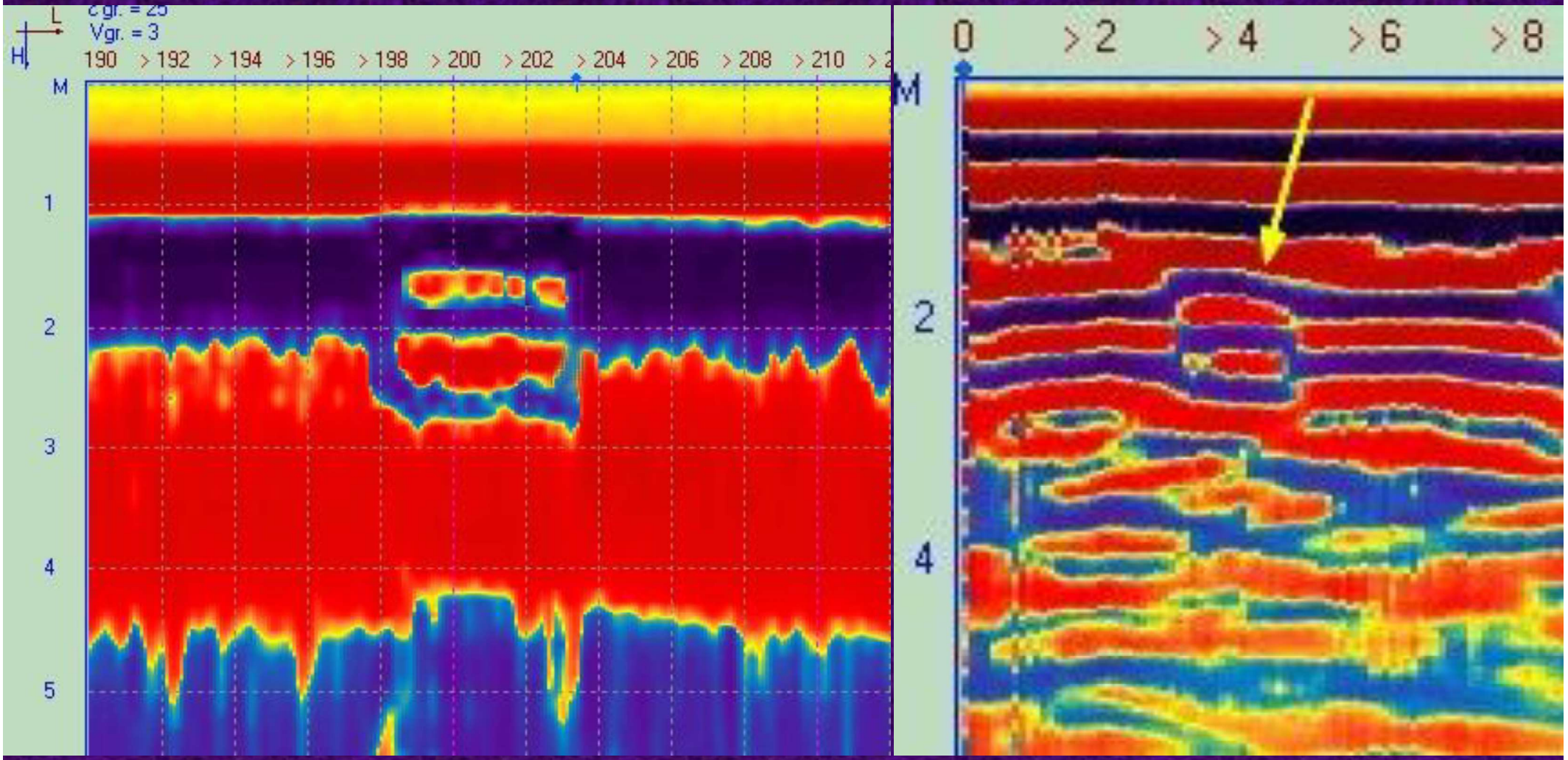




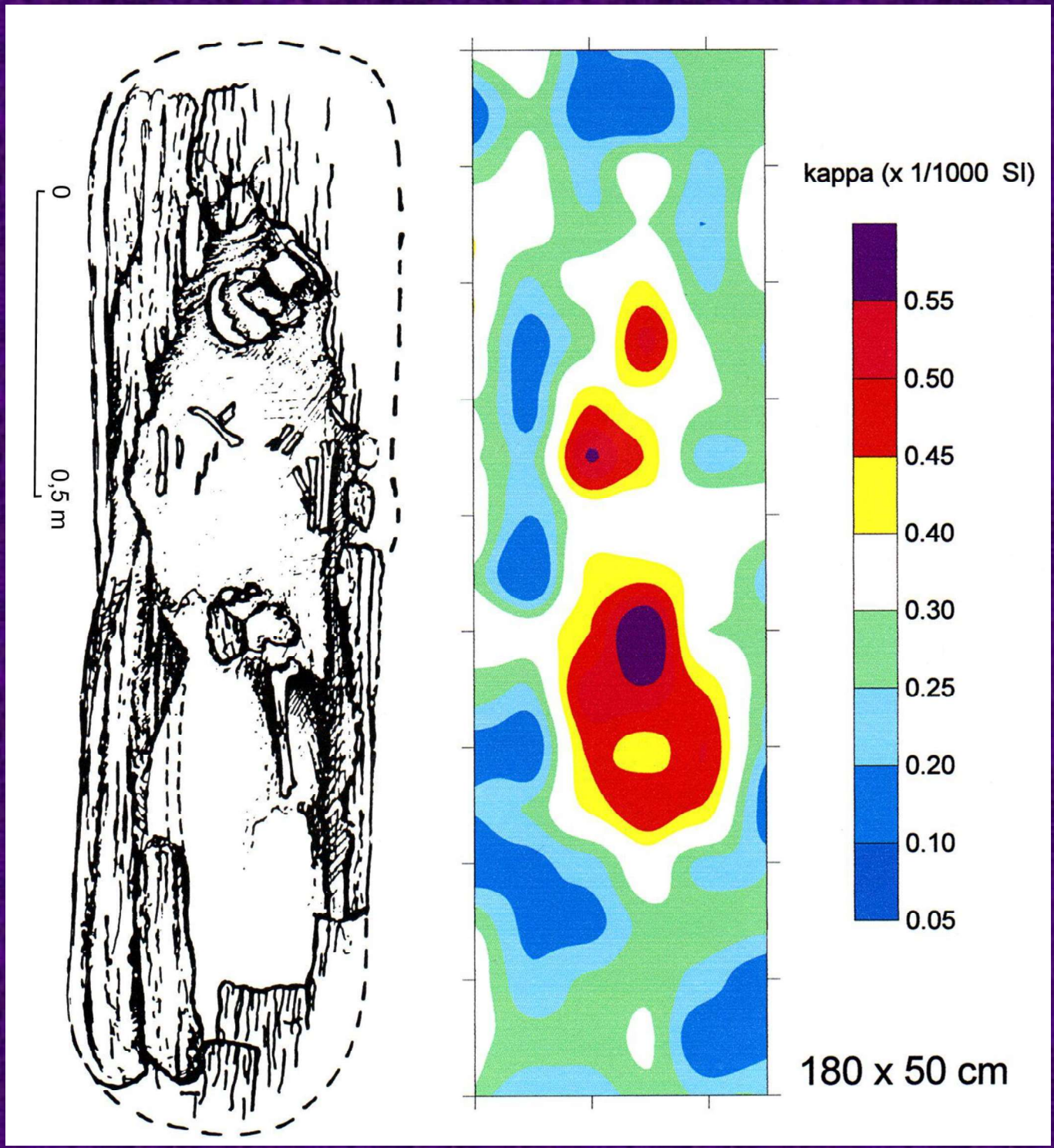
Podbořany (LN) – průzkum v okolí kostela sv. Petra a Pavla, zaniklé pohřebiště, ohradní zeď, cesty, terasy (geoelektrické odporové měření)



Příklady detekce plochých hrobů pomocí radaru – odlišnosti výplně, vrstvy (http://www.georadar.rtg-tengler.cz/)

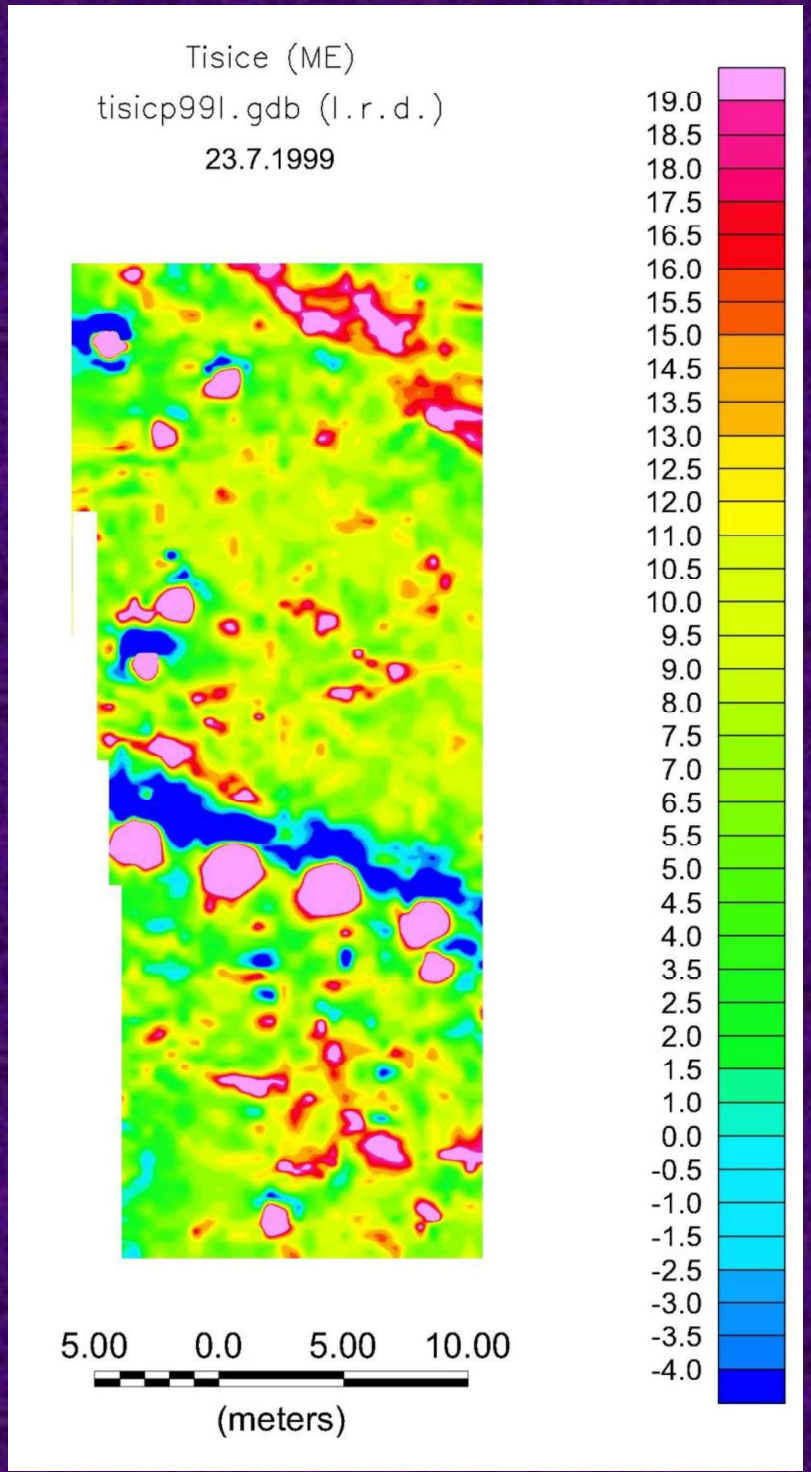


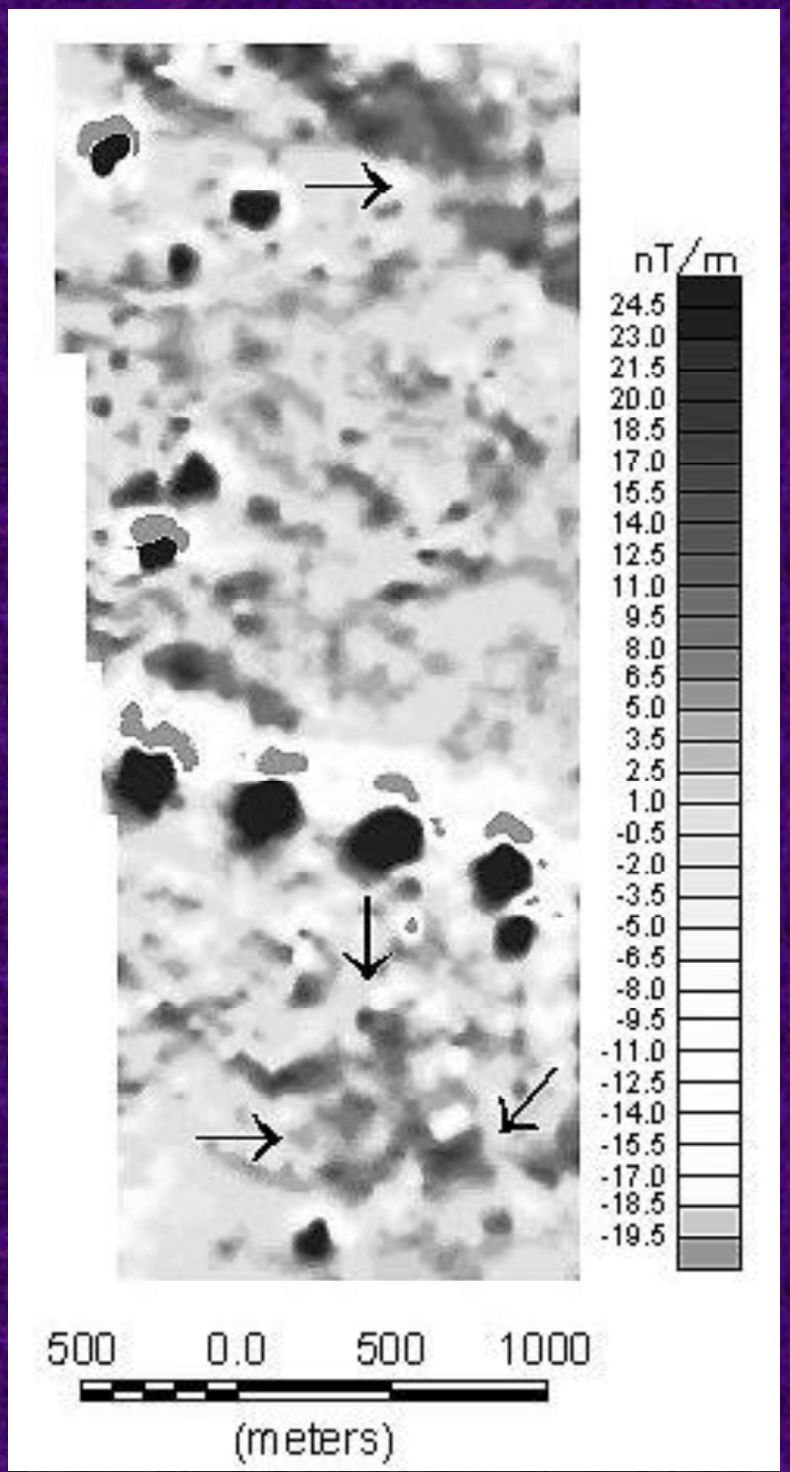
Tišice (ME)


0
0,5 m
kappa (x 1/1000 SI)
0.55
0.50
0.45
0.40
0.30
0.25
0.20
0.10
0.05
180 x 50 cm

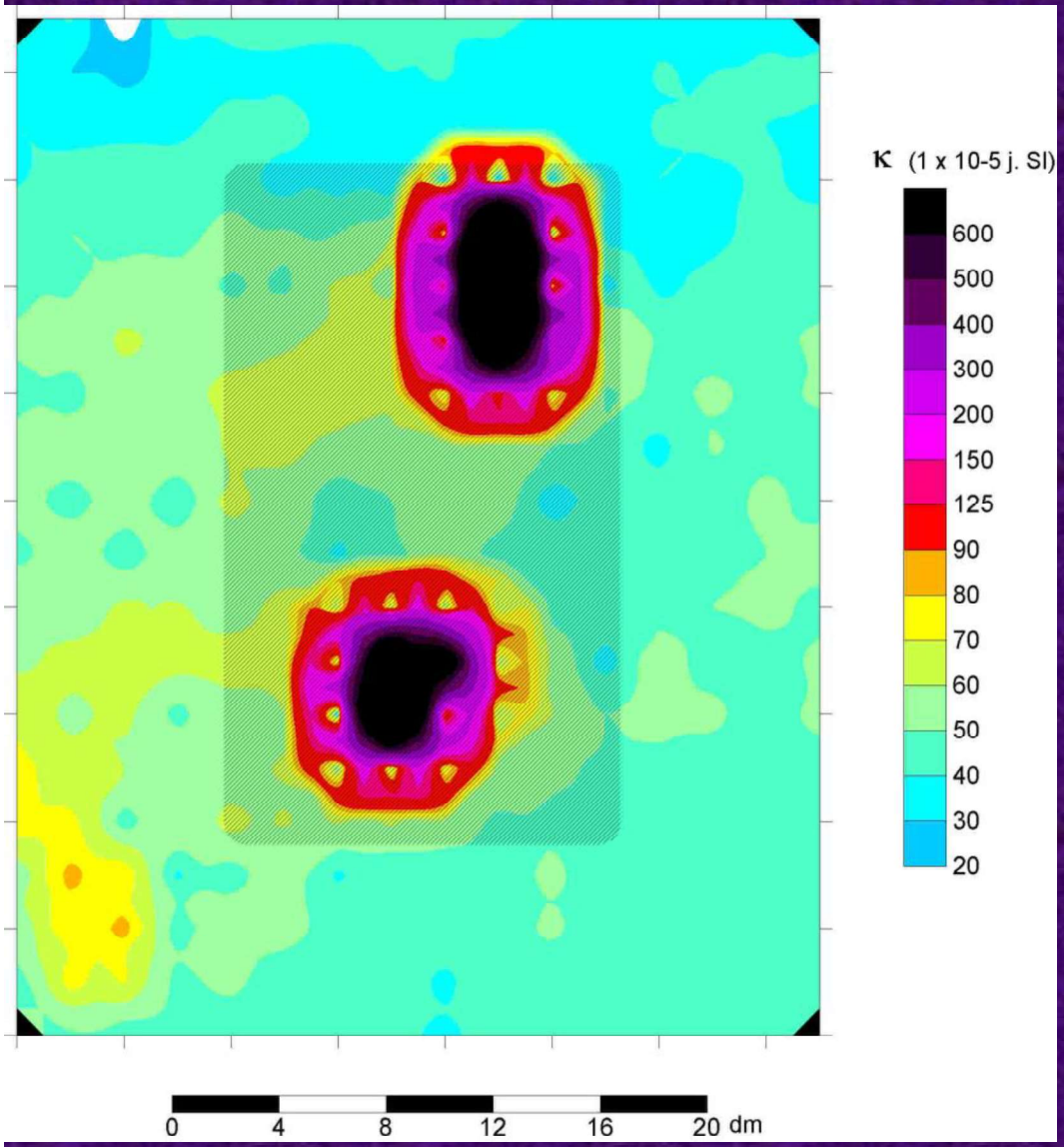
Žárová pohřebiště

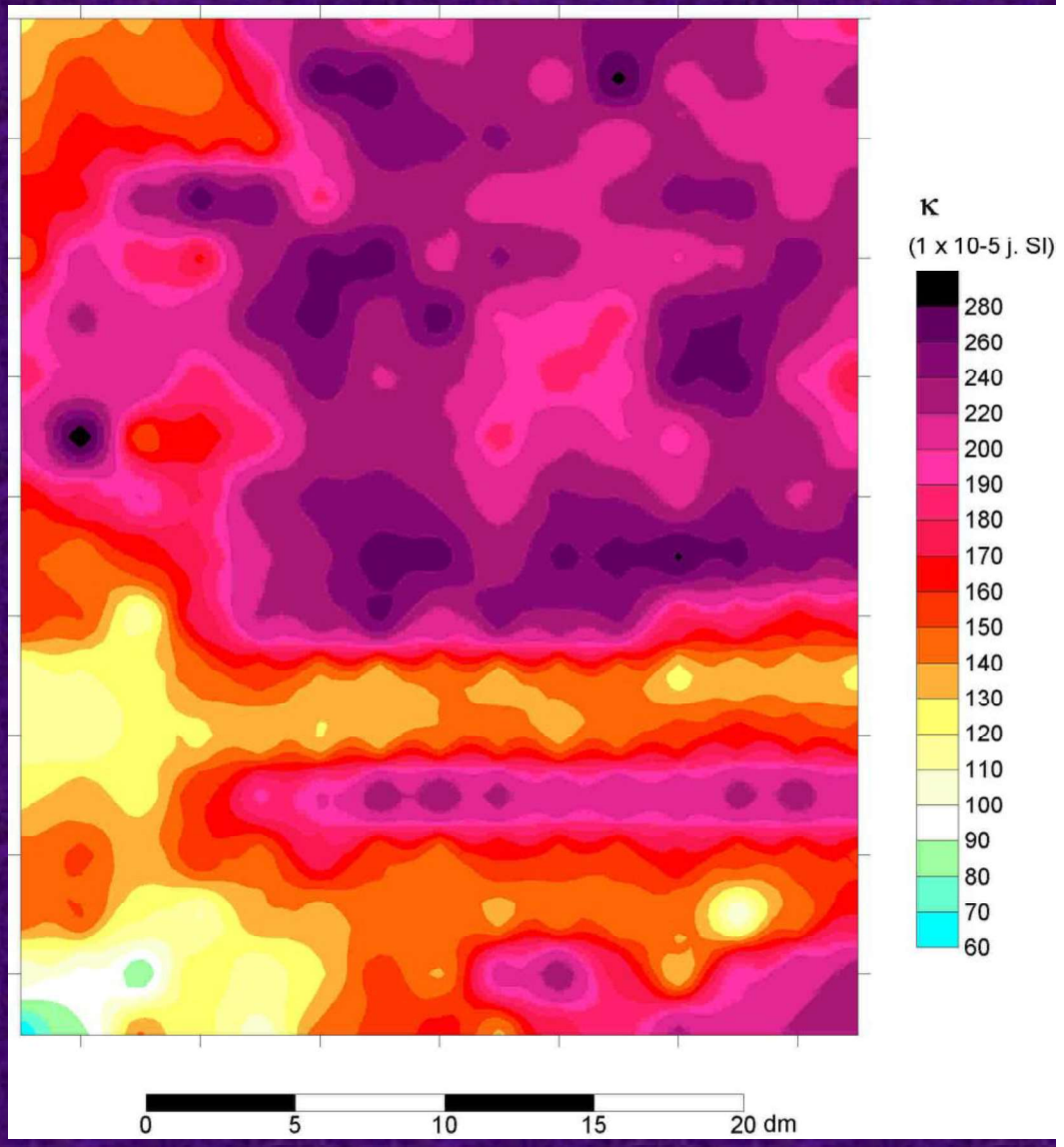
Tišice (ME) – žárové hroby rozrušené skrývkami a výkopy v pískovně



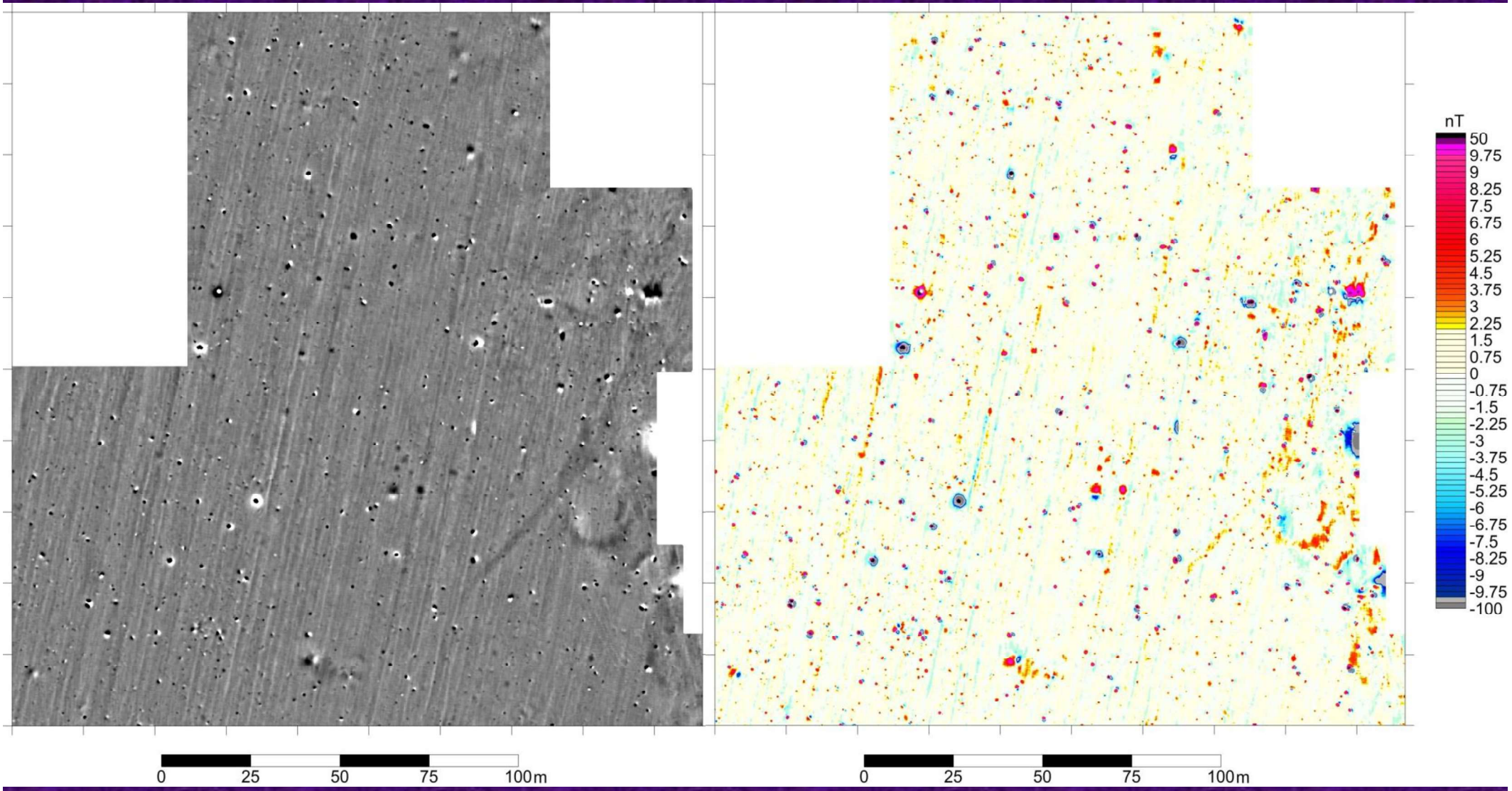


Vlíněves (ME) a Tišice (ME) – průzkumy hrobů na skrývce měřením magnetické susceptibility in situ

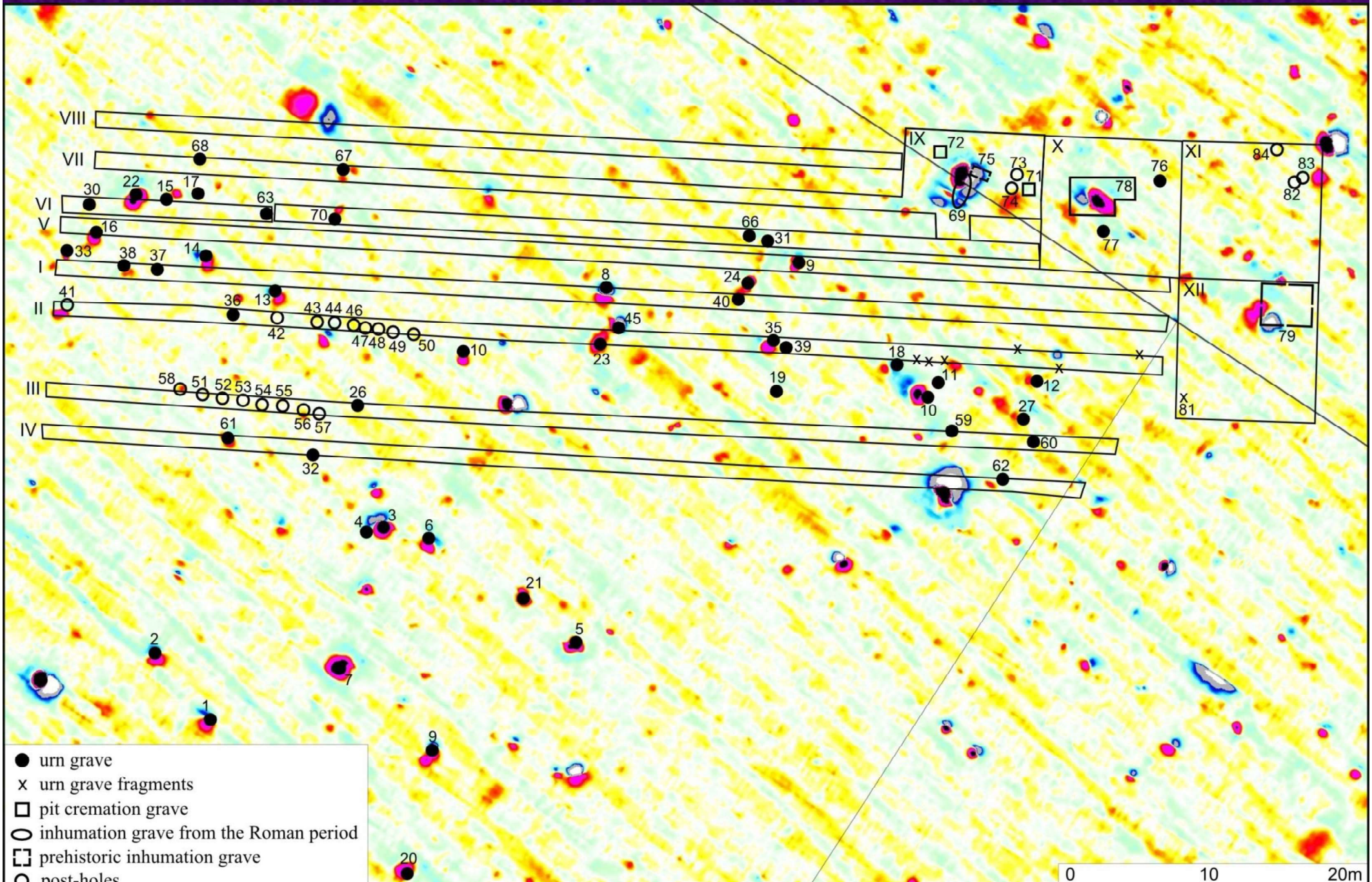




Nezabylice (CV) – podrobný plošný magnetometrický průzkum části žárového pohřebiště ze starší doby římské ohroženého orbou i nelegálními výkopy po užití detektorů kovů (cca 3,1 ha)

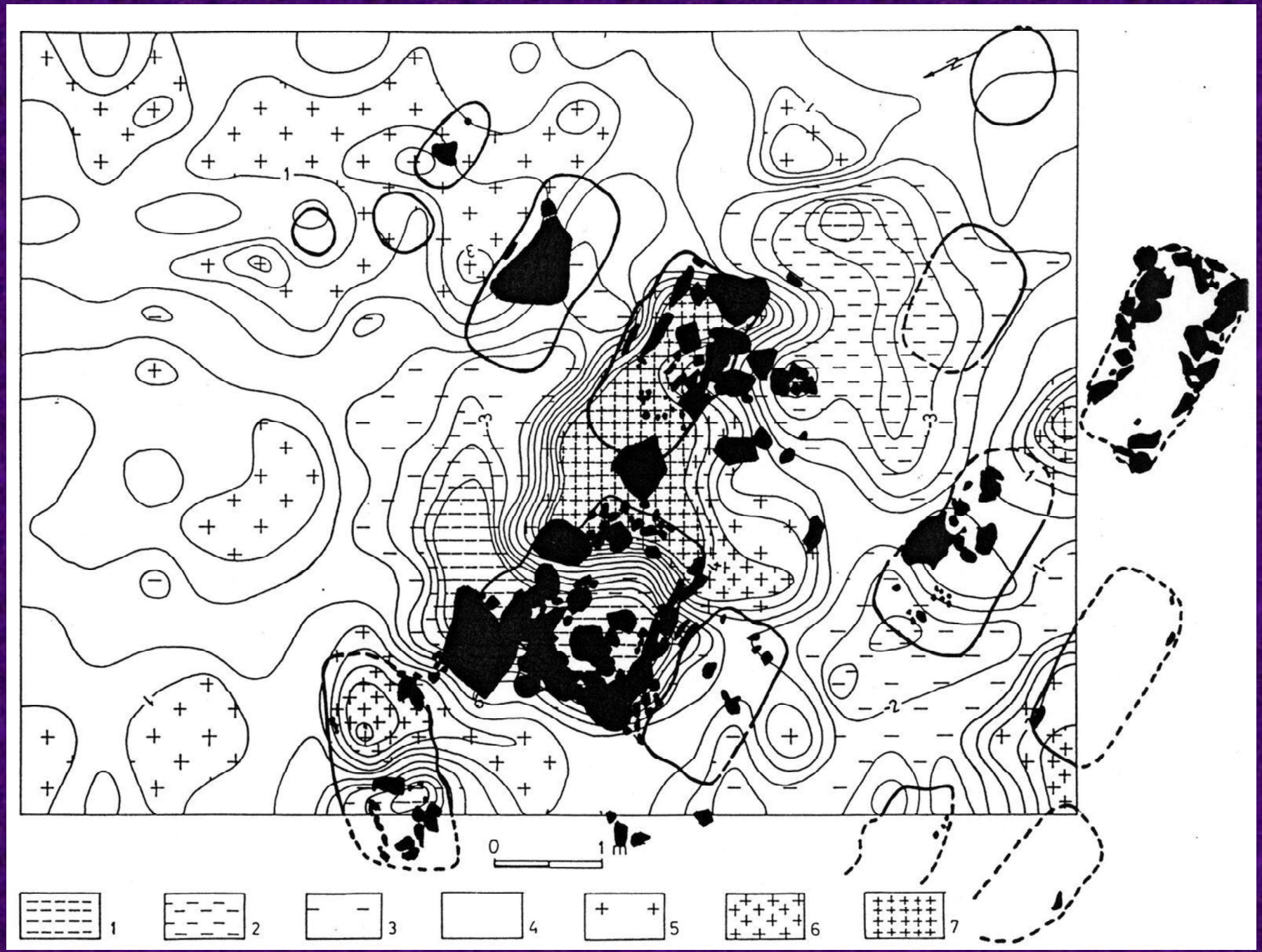


Nezabylice (CV) – porovnání výsledku magnetometrického průzkumu a arch. sondáží na části žárového pohřebiště ze starší doby římské

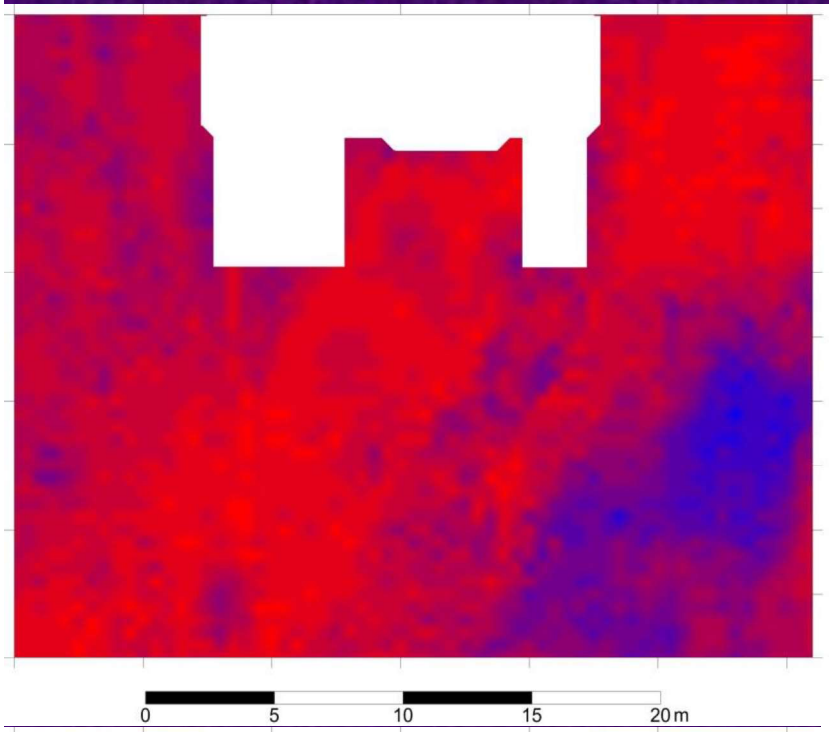


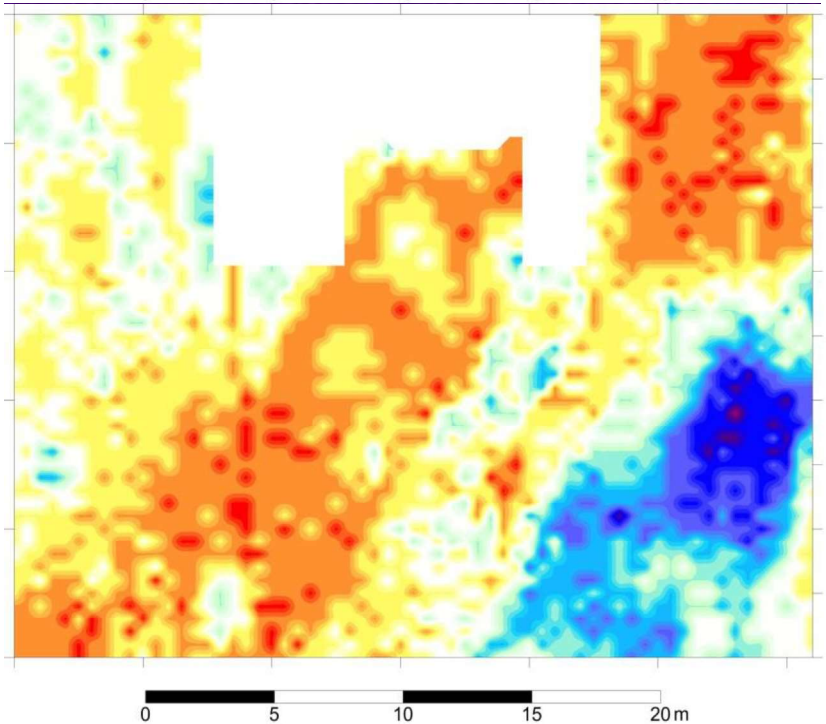
Skříňkové hroby

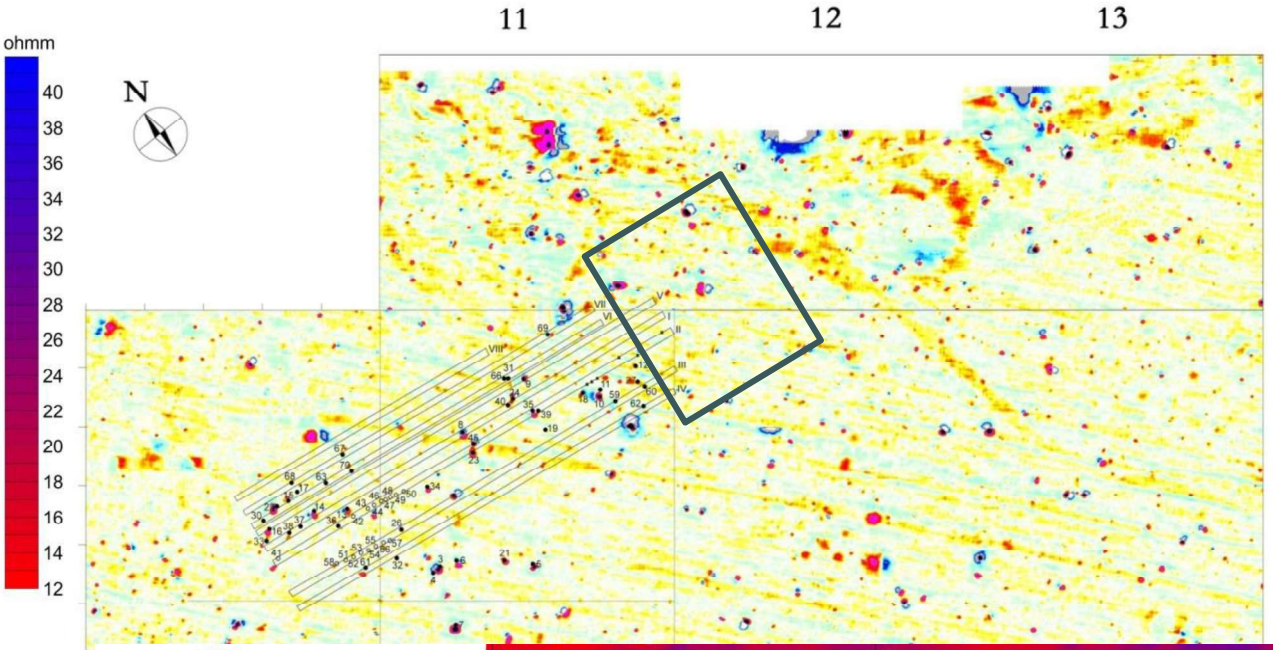
Konobrže (MO)

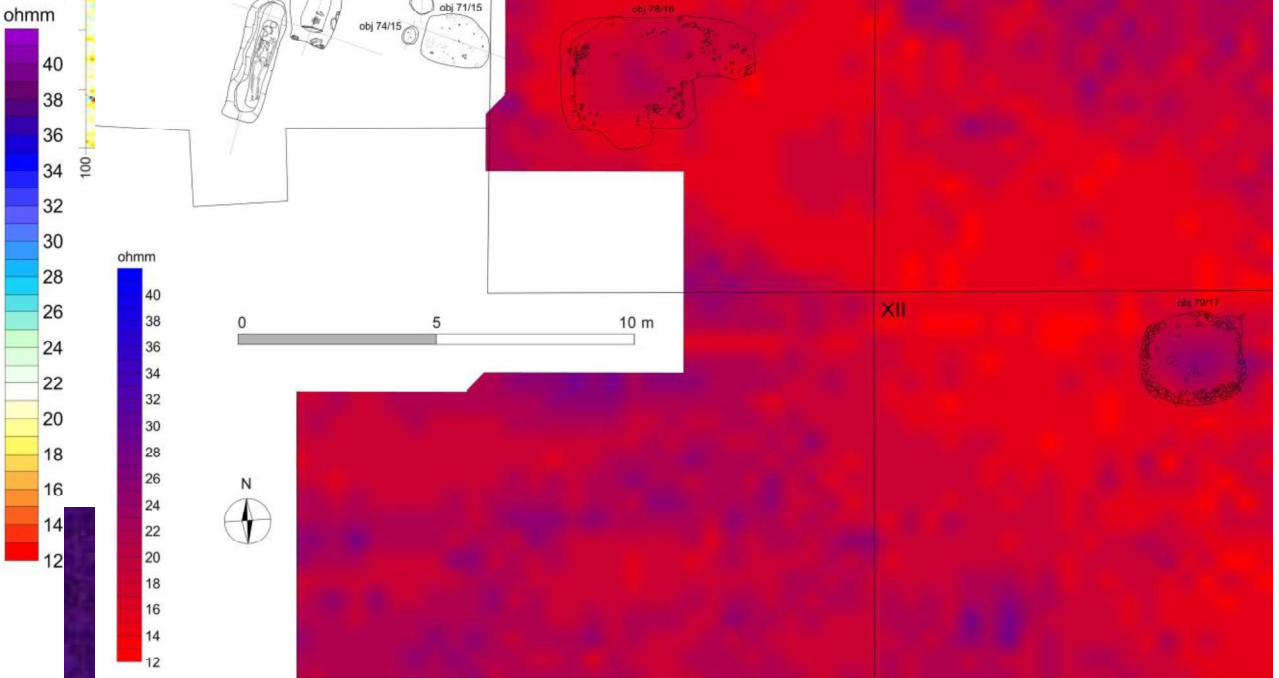


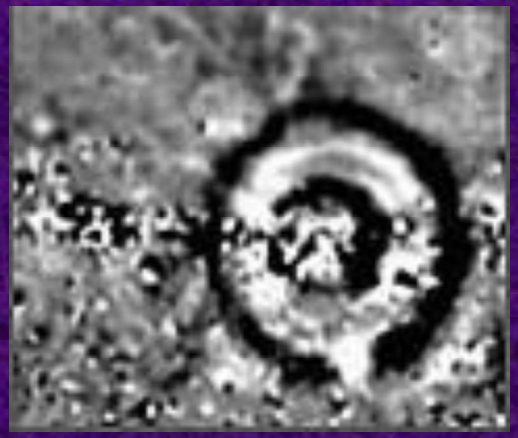
Nezabylice (CV) – okolí sond, ploché hroby s kamenným obložením nebo výplní (EN)





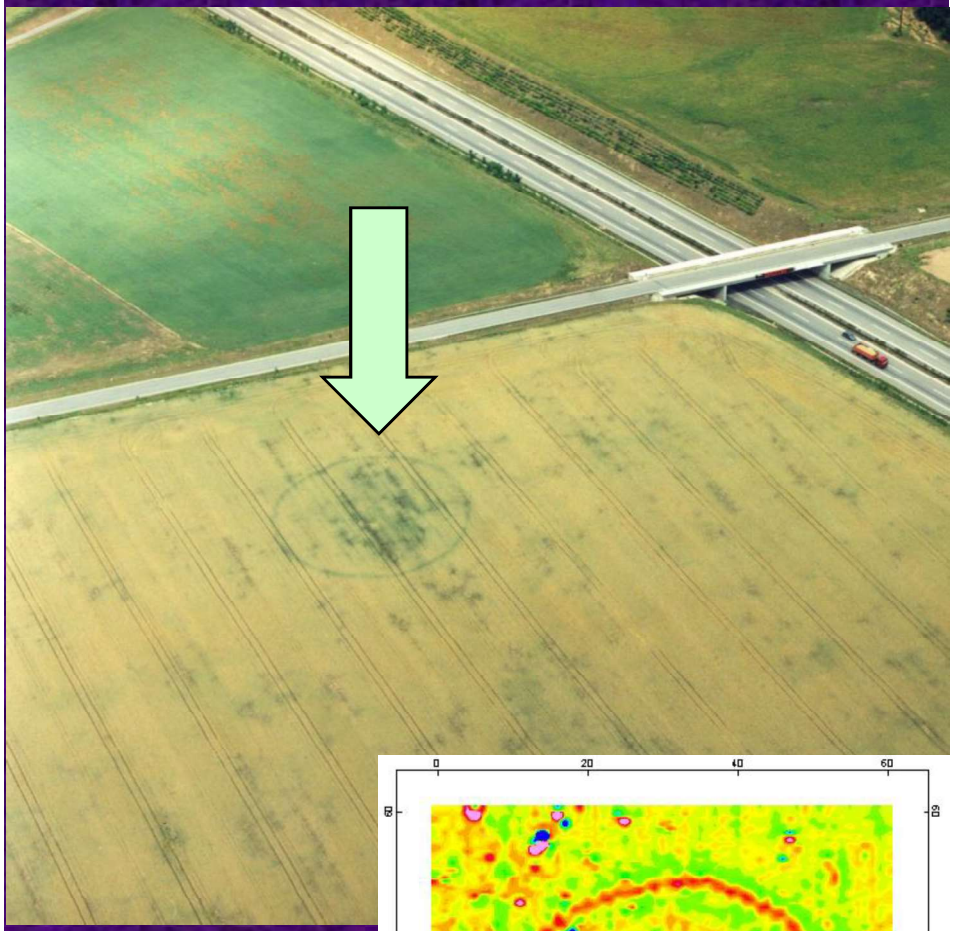


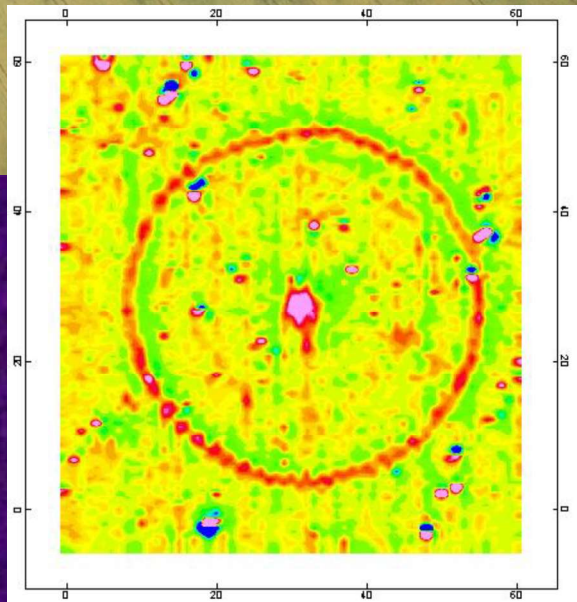


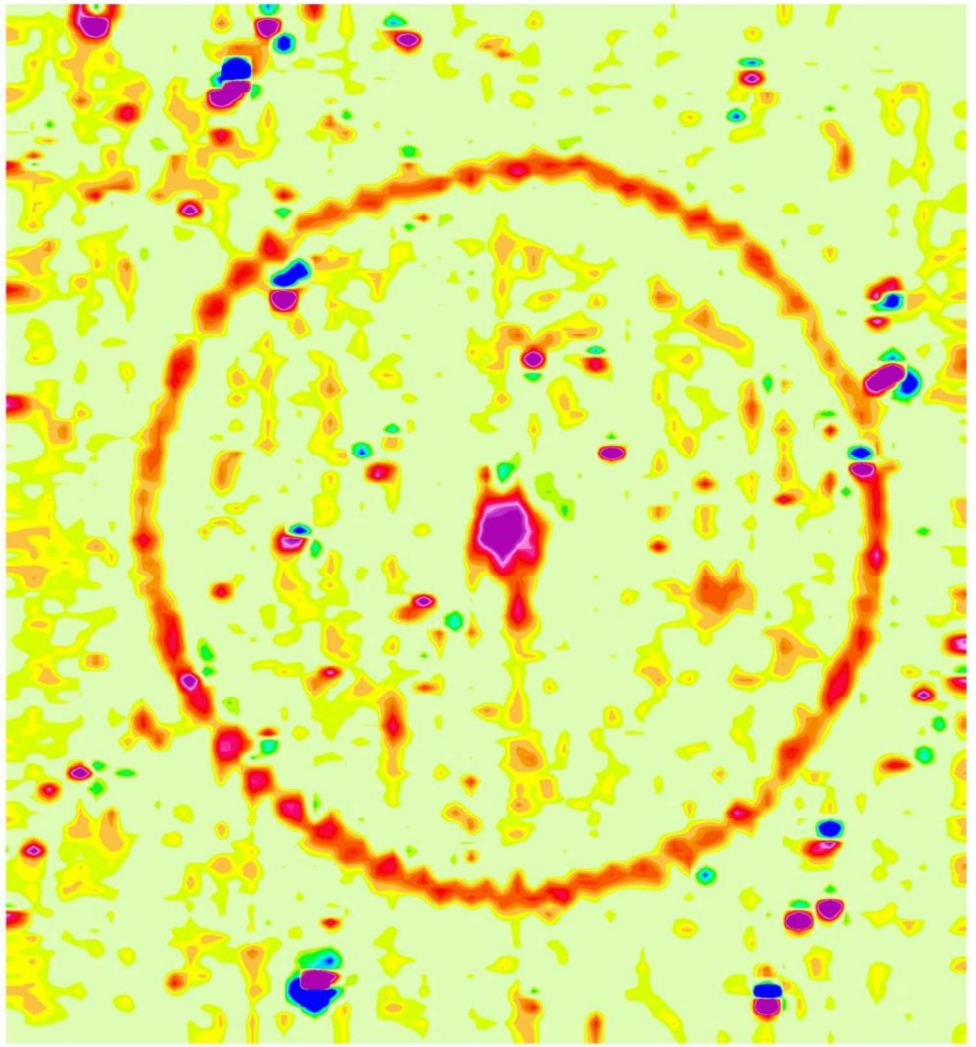


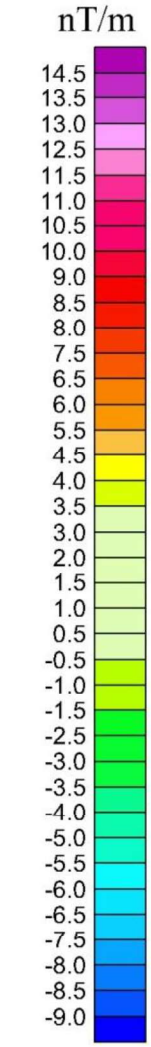
Mohylníky (+hroby s ohrazením)

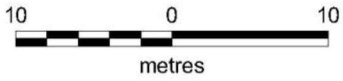
Dolínek (PZ)







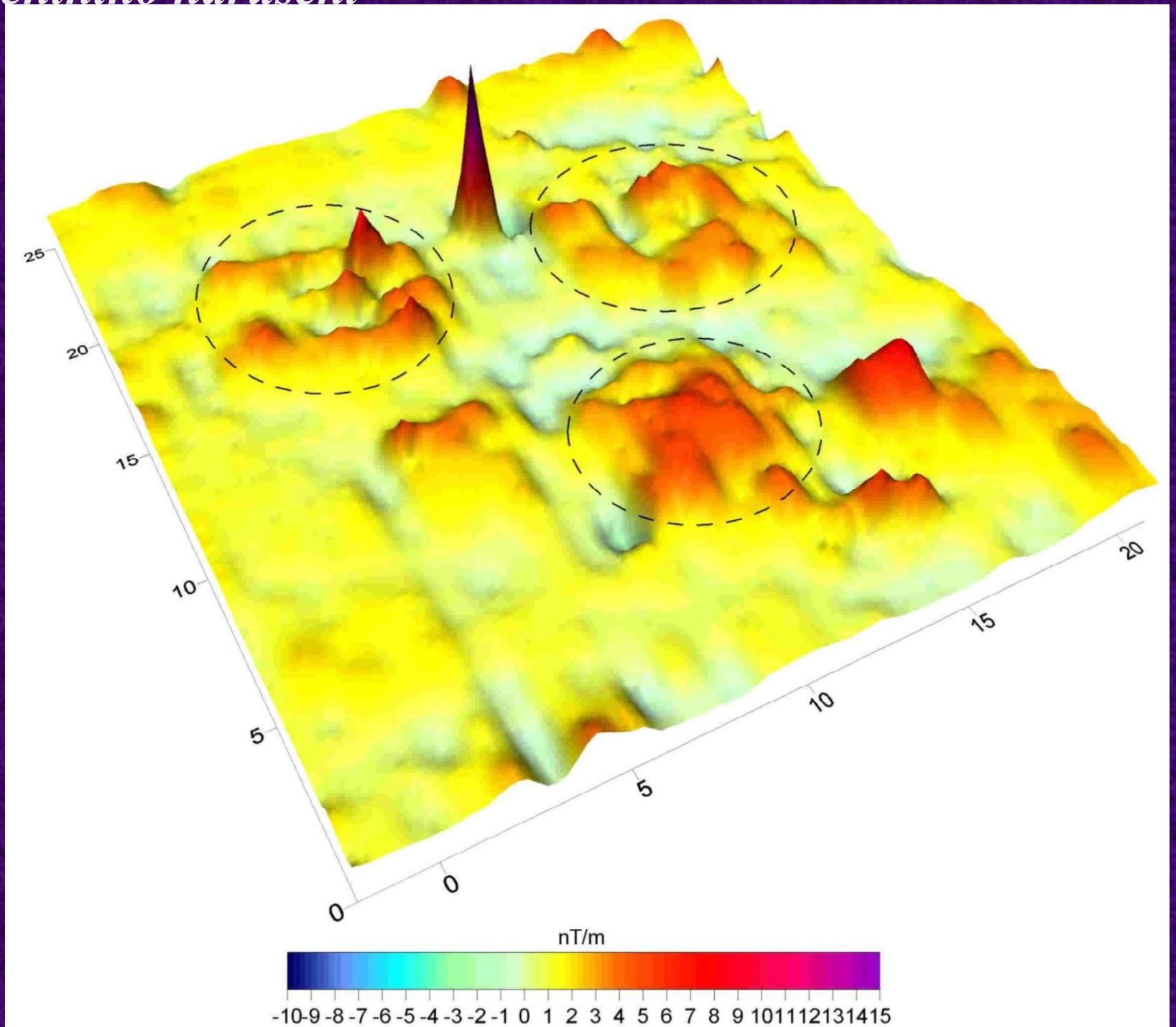






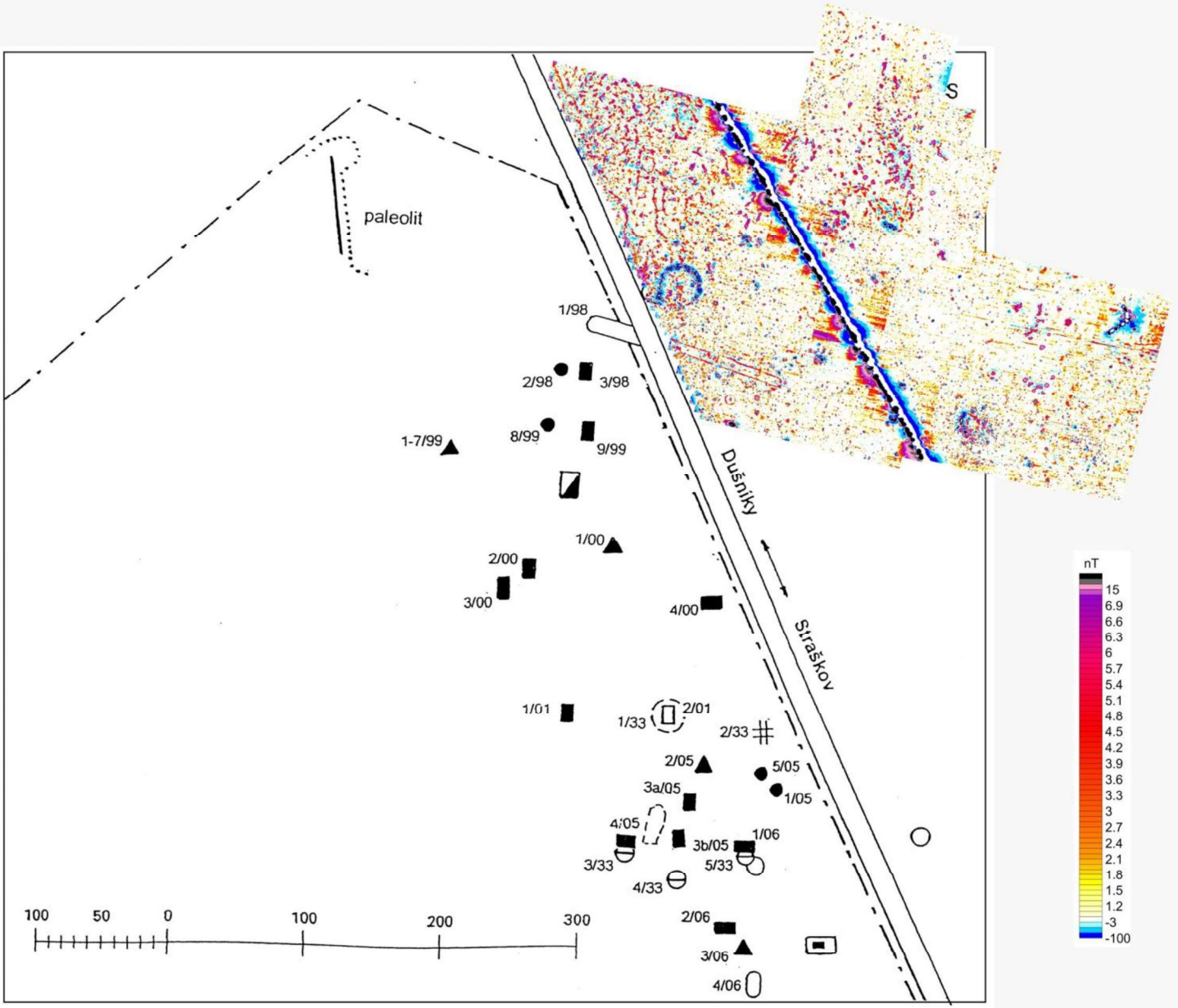
Dolinek (PZ)
Krivanek 2002

Údraž (PI) – rozlišení tvarů mohyl a stavu podpovrchového dochování resp. recentního narušení



Račiněves-Vražkov (LT) – průzkum okolí vytěžené pískovny s nálezy polykulturního pohřbívání i osídlení

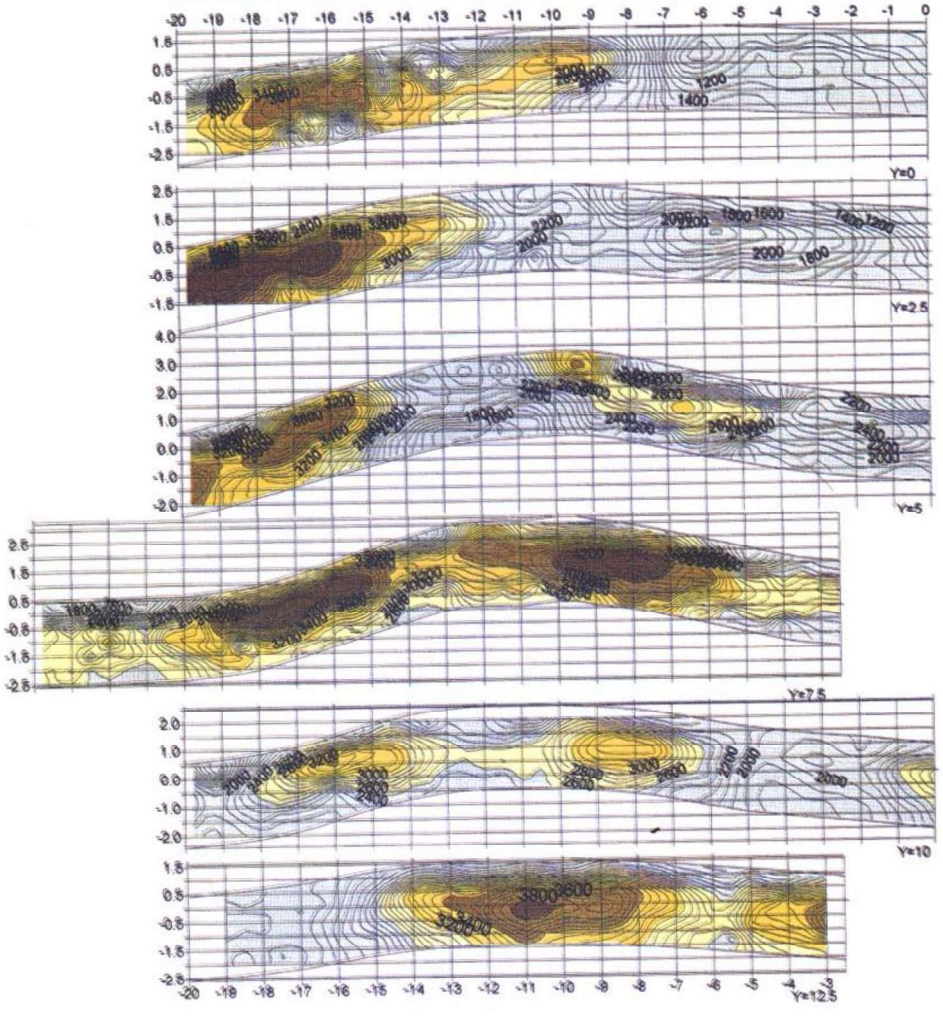




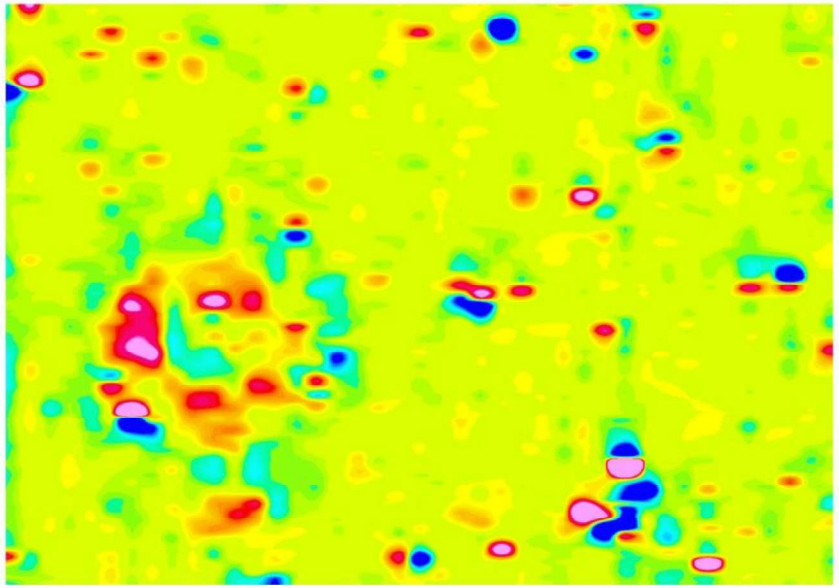
1. Mohyly kultury bylanské
2. Mohyly kultury bylanské - výzkum J. Böhm
3. Mohyla s čtvercovým příkopem
4. Komorový hrob kultury bylanské
5. Hranice výzkumu staropaleolitické stanice
6. Archeologický výzkum staropaleolit. stanice
7. Hranice těžebního prostoru
8. Obdélníková stavba se žlaby
9. Žárový hrob
10. Obdélníkový hrob
11. Jáma
12. Oválný hrob
13. Zničený hrob
14. Mohyla
15. Kůlová obdél. stavba
16. Sonda

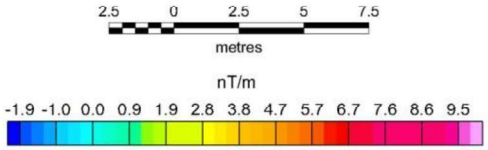
Nipmerow (D)

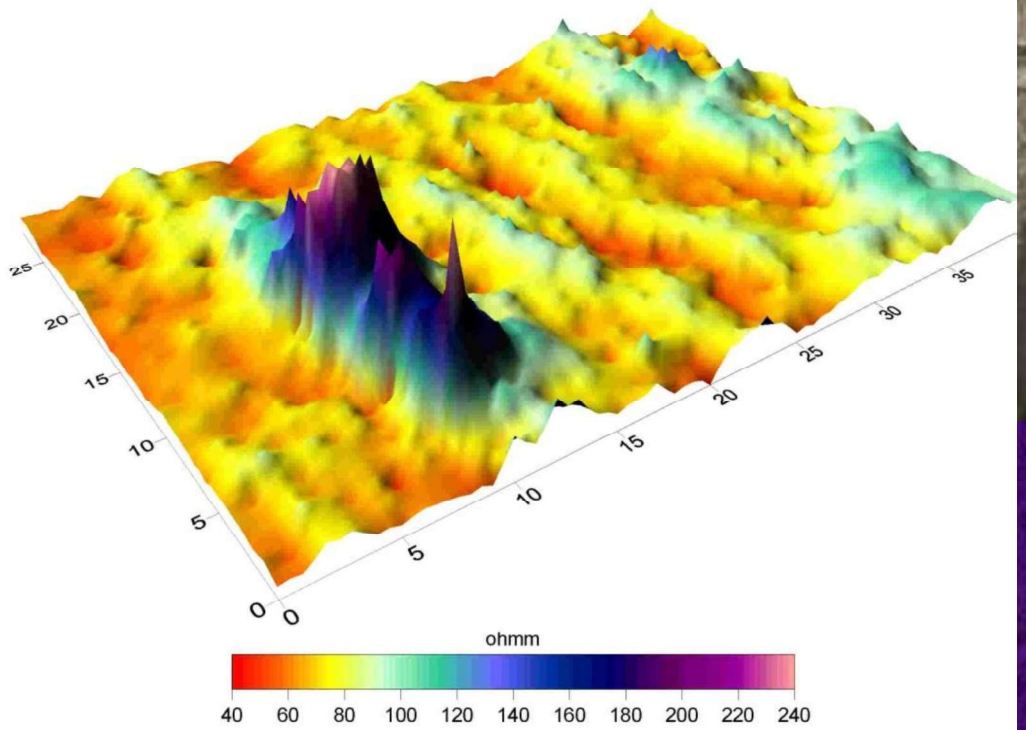




Dobešice (PI) – magnetometrický a geoelektrický odporový průzkum rozoraného mohylového pohřebiště (výzkum KAR ZČU v Plzni – Krištuf a kol.)

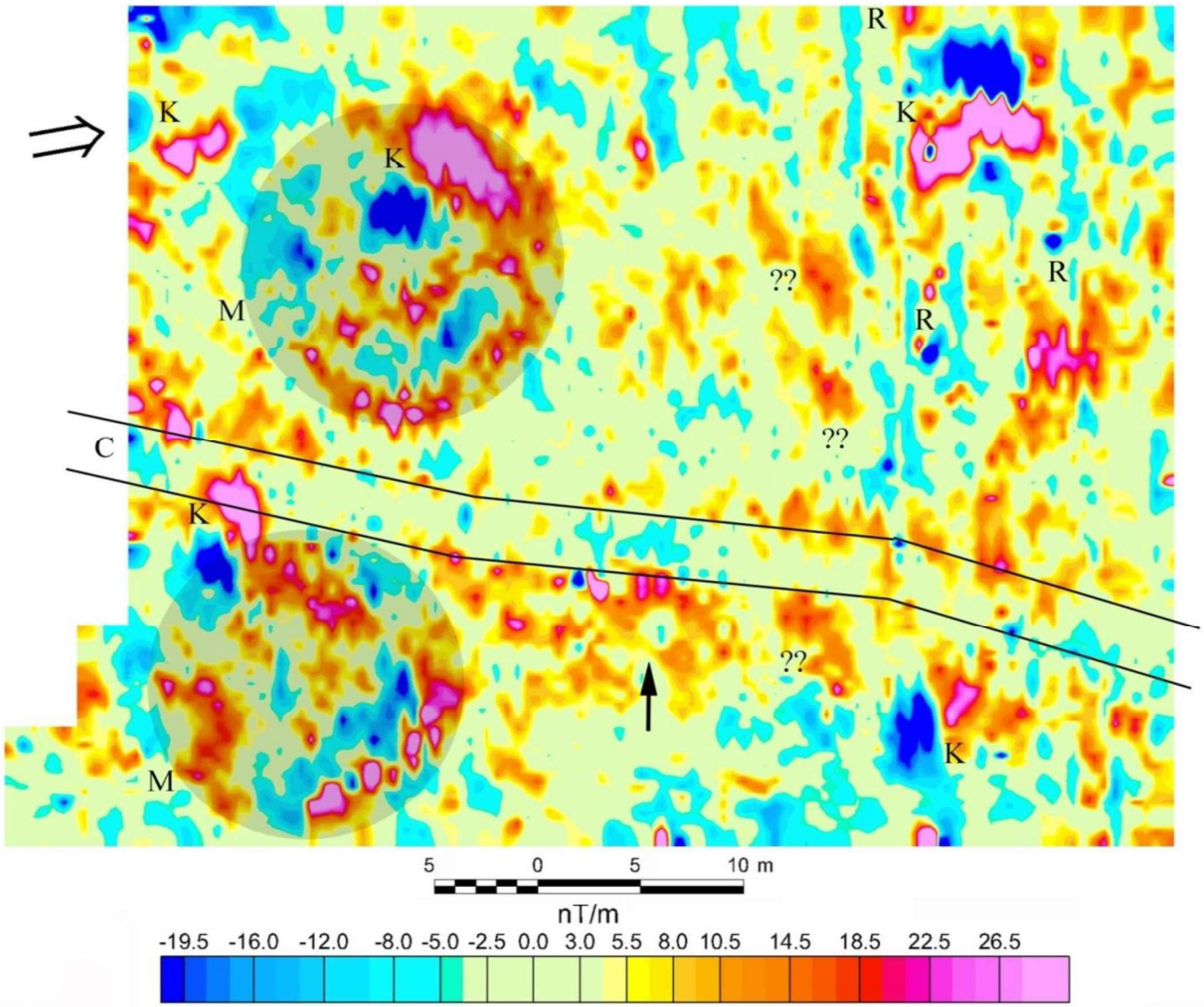


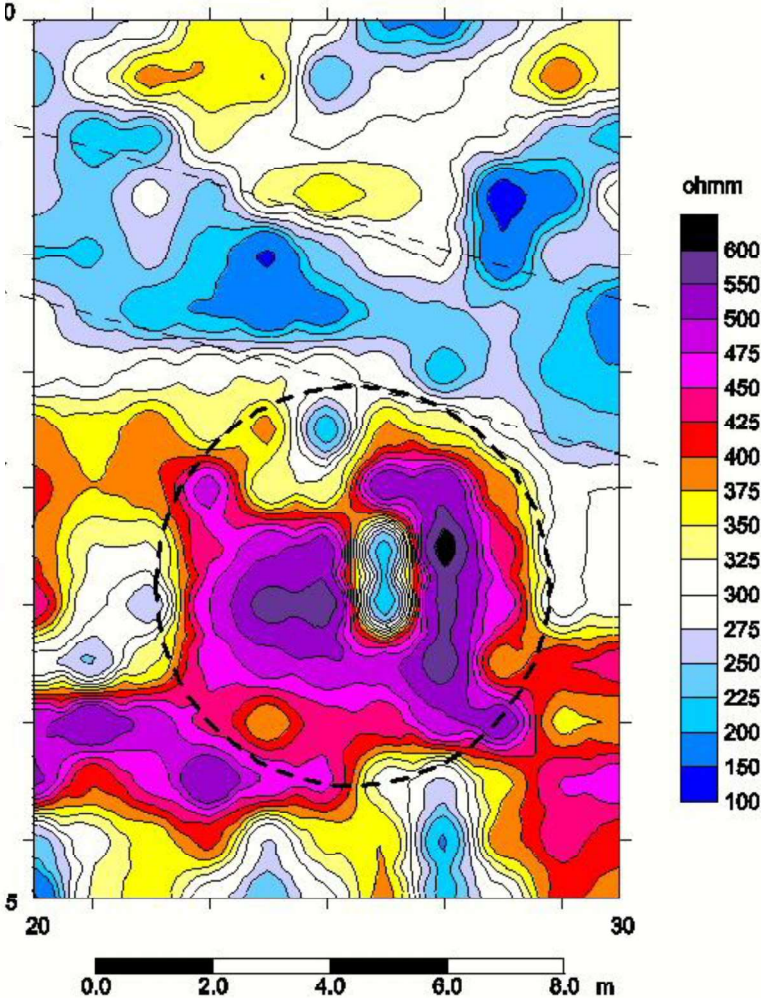


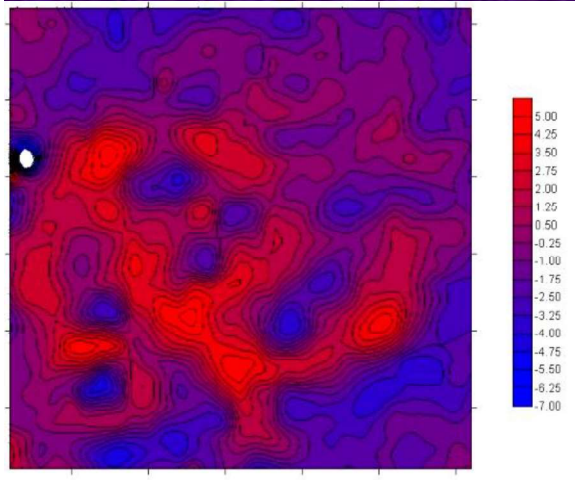


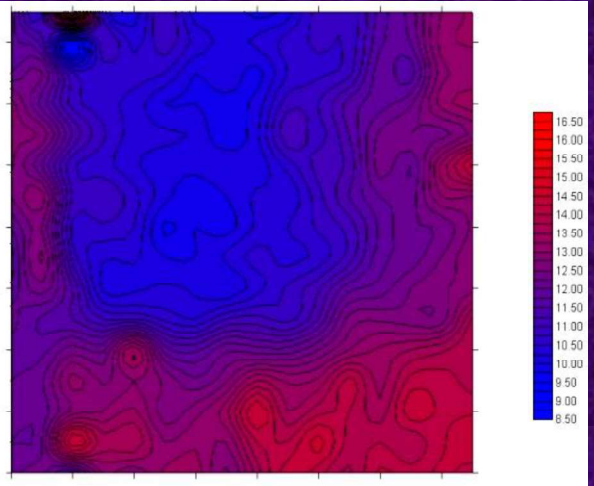


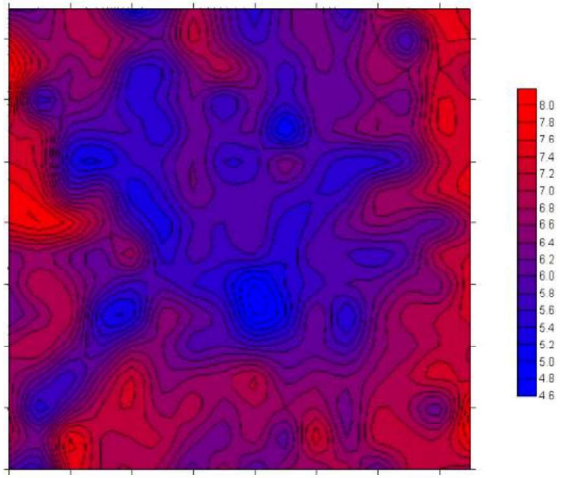
Šťáhlavy (PJ) – silně narušené mohyly výzkumem i nelegálními výkopy

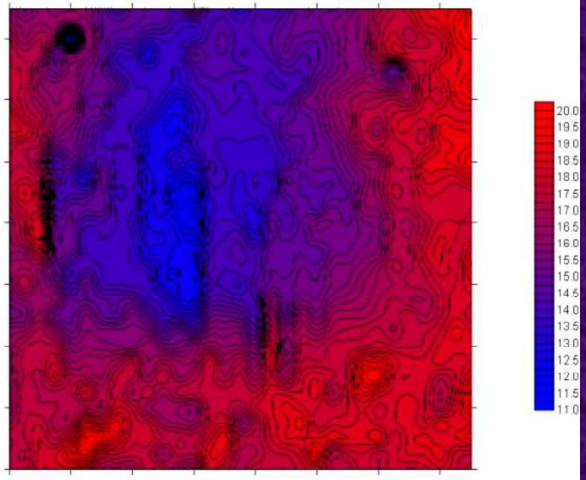


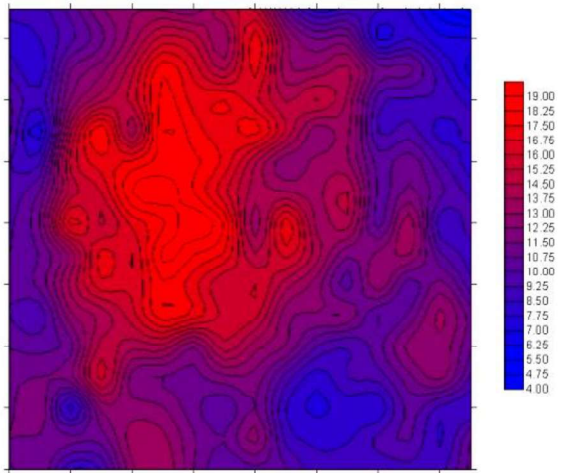








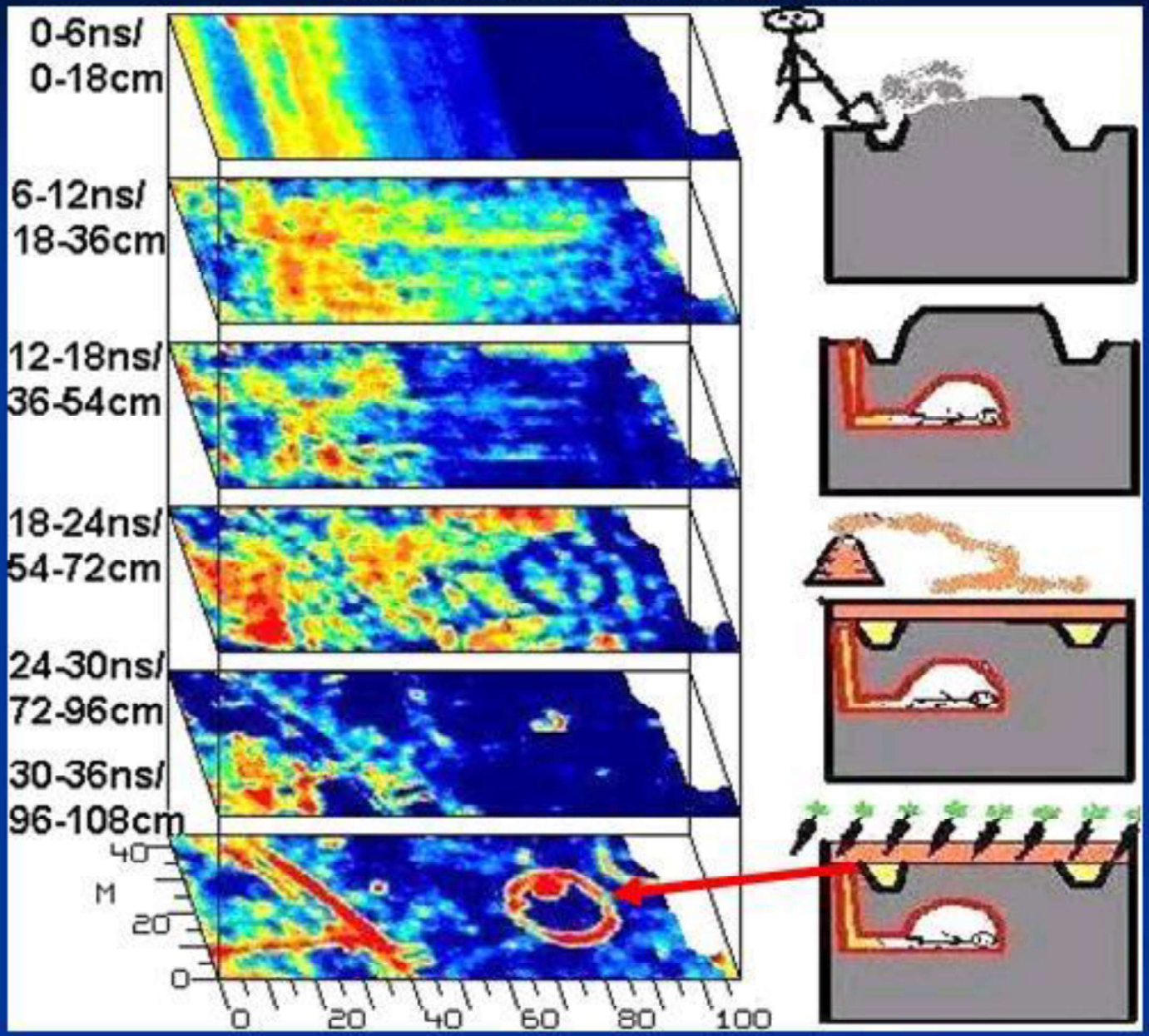




Kostomlaty p. Ř. (LT) – porovnání více testovaných geofyzikálních metod (M, EM, T, MS)

6th Century AD Kofun Burial

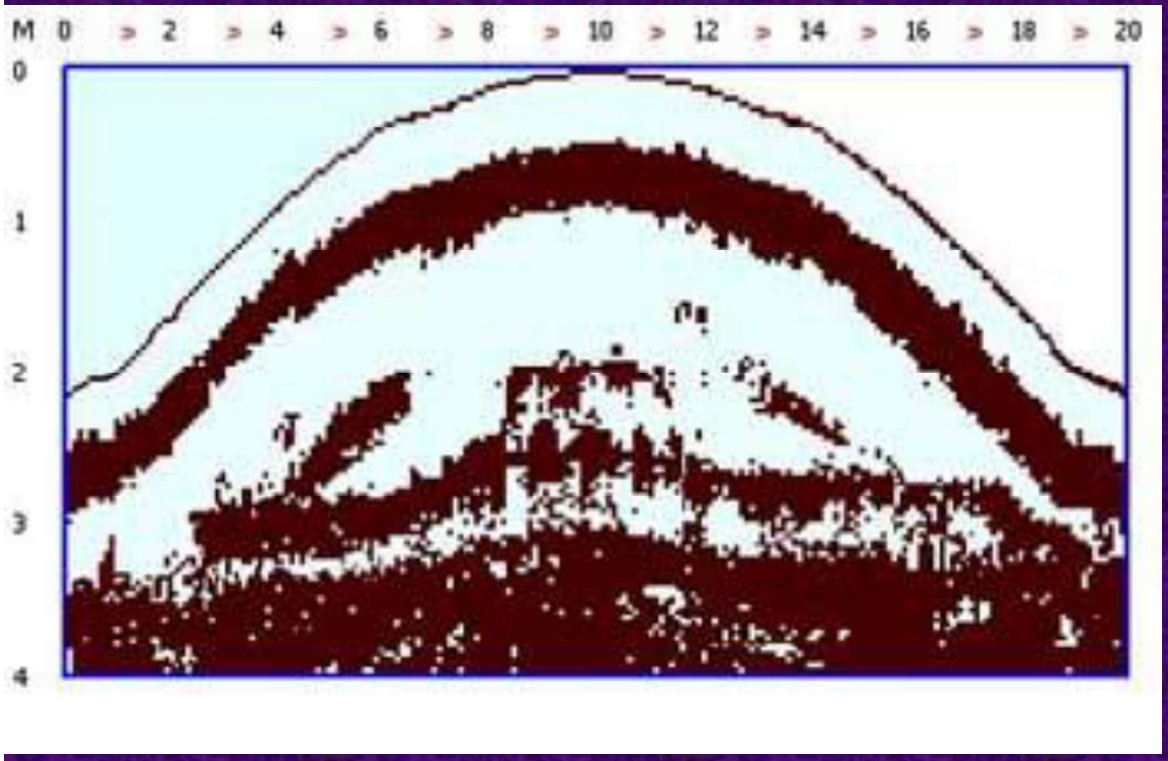
Miyazaki Prefecture, Japan





Řez mohylou (Rusko)



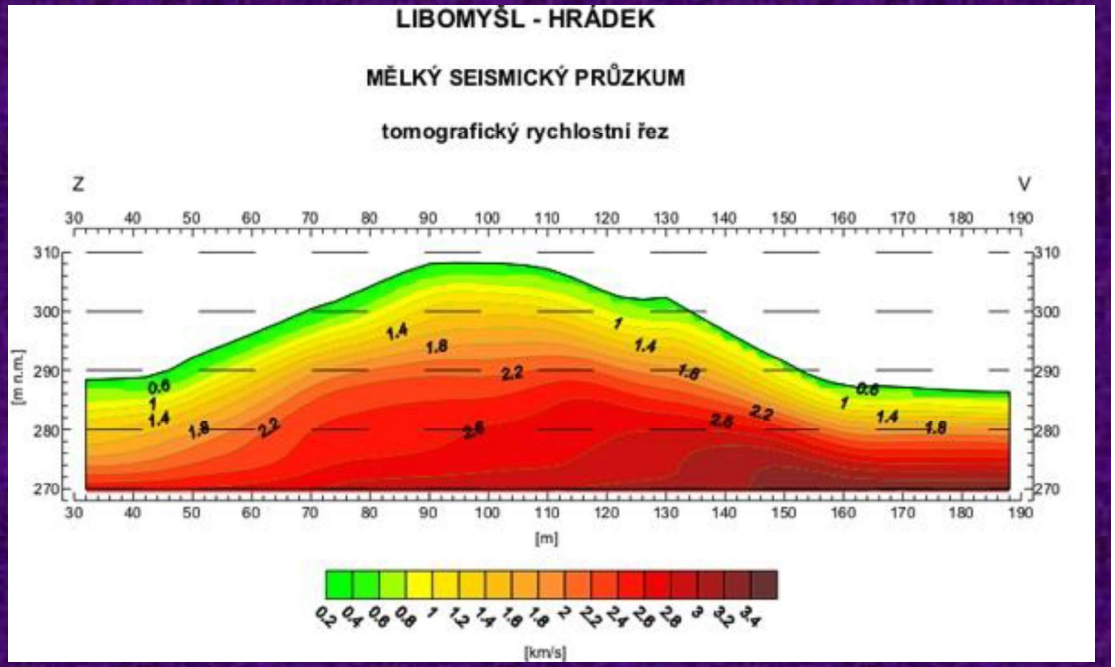


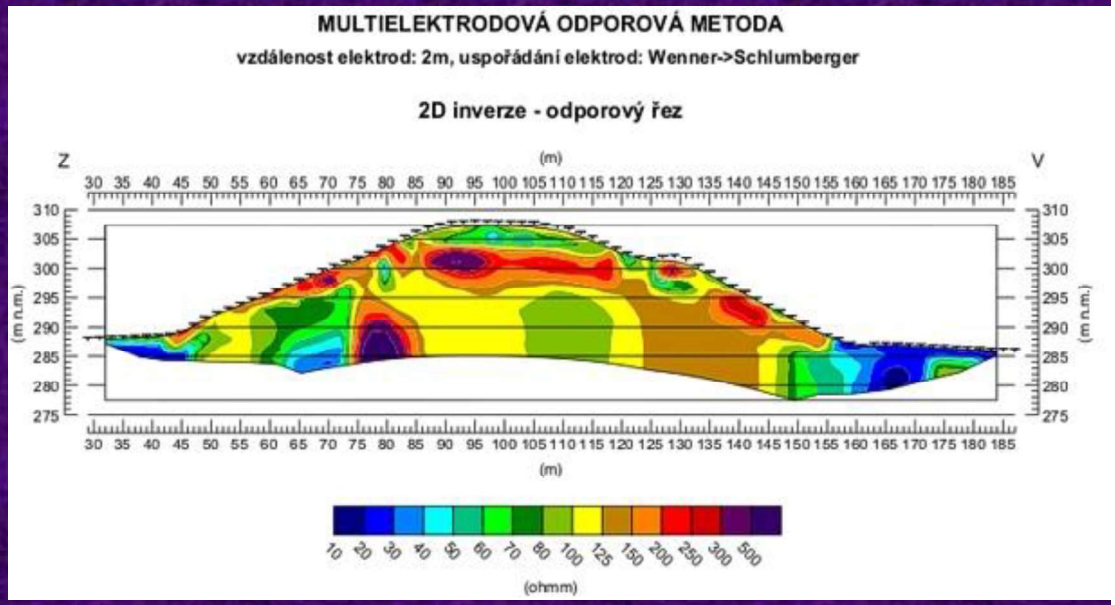


Libomyšl (BE) – dochovaná pravěká mohyla (?), zaniklé středověké tvrziště

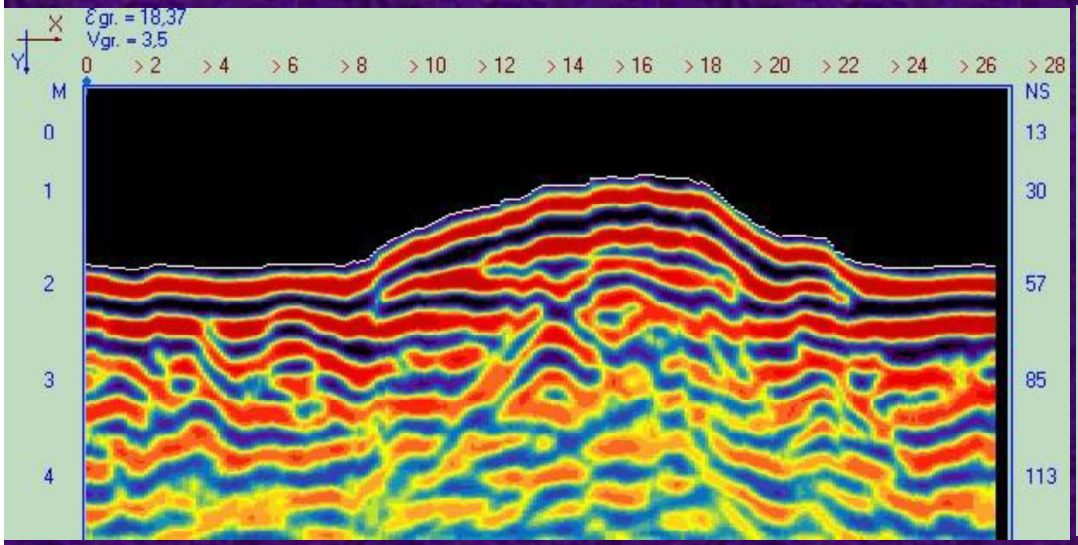


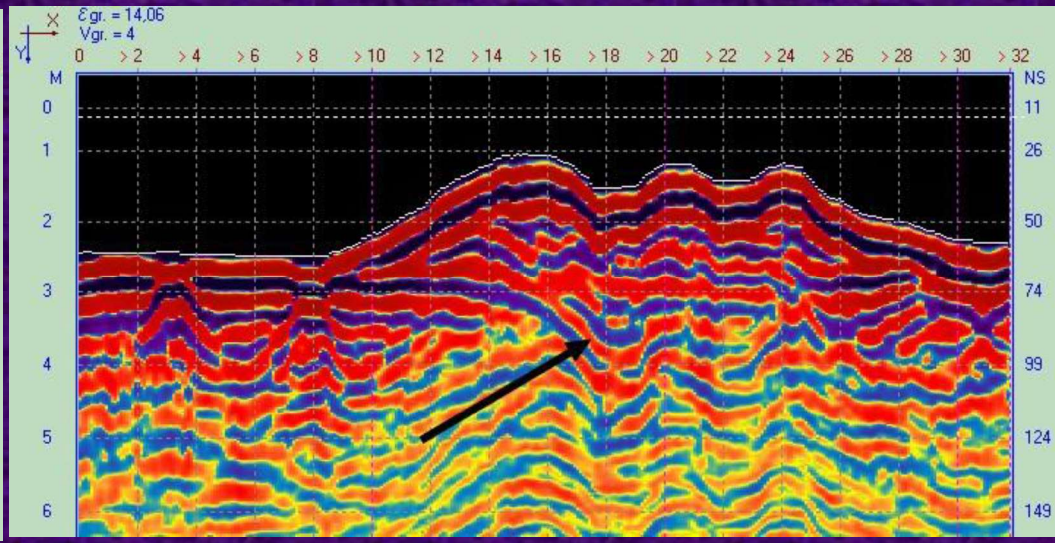


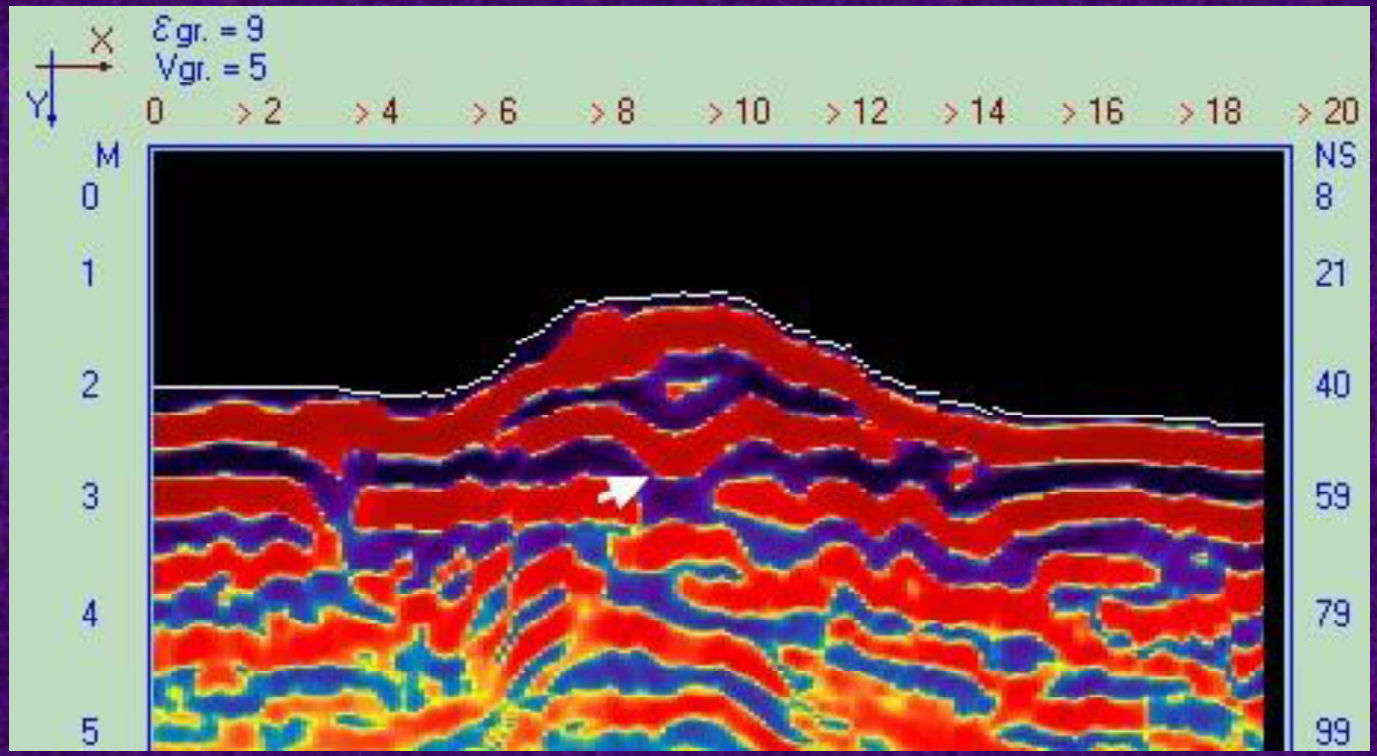




Příklady detekce mohyl a stavu jejich zachování pomocí radaru – odlišnosti výplně, narušení nebo propady vrstev (http://www.georadar.rtg-tengler.cz/)

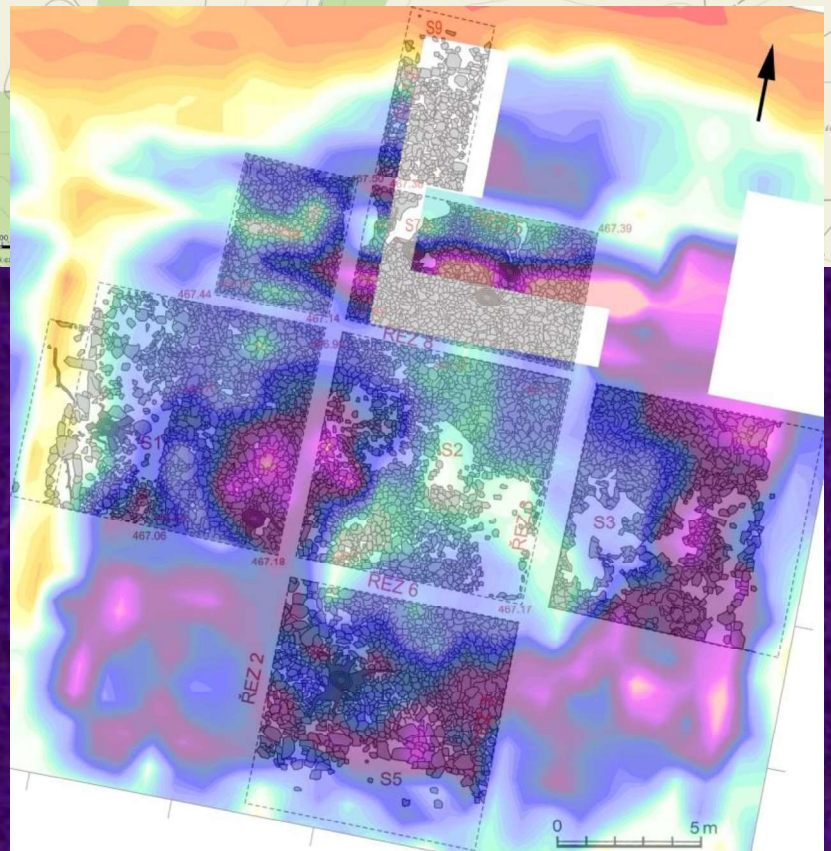


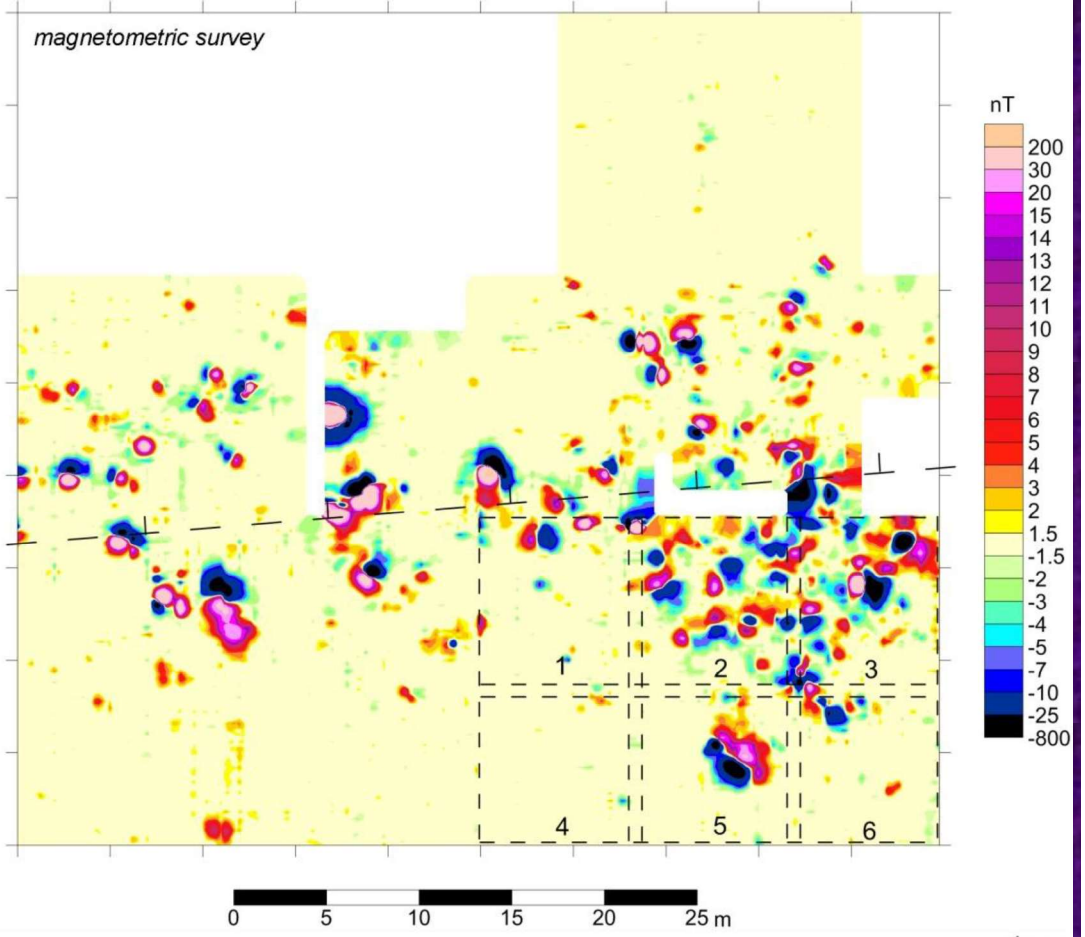


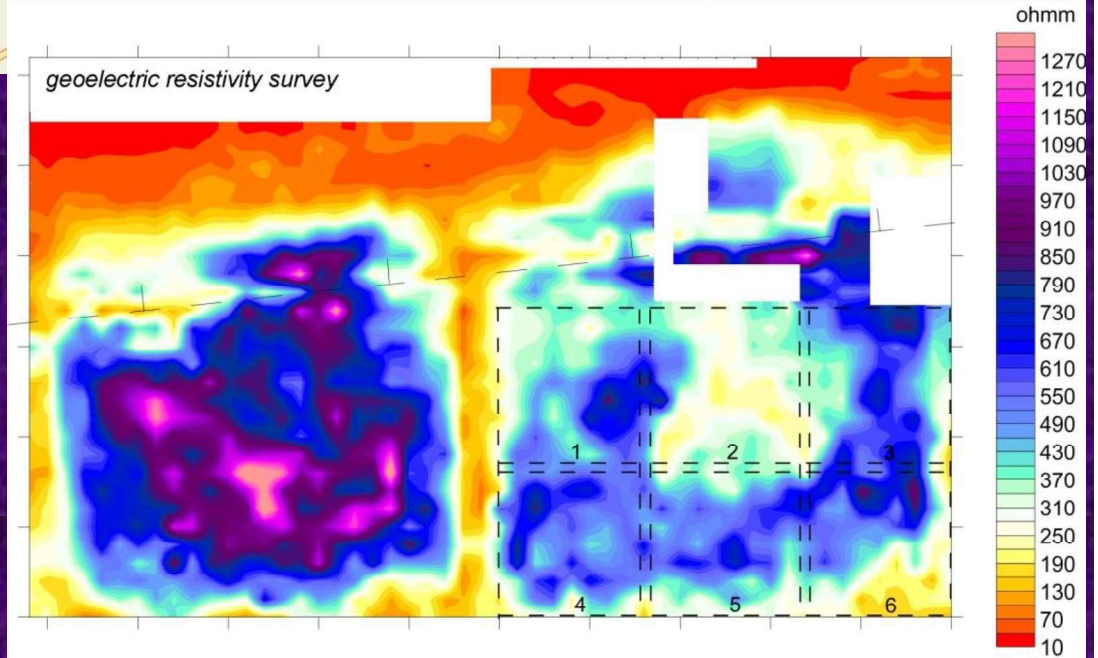


Rovná (ST) – magnetometrický a geoelektrický odporový průzkum zkoumané mohyly resp. dvou mohyl (cca 50x30 m)







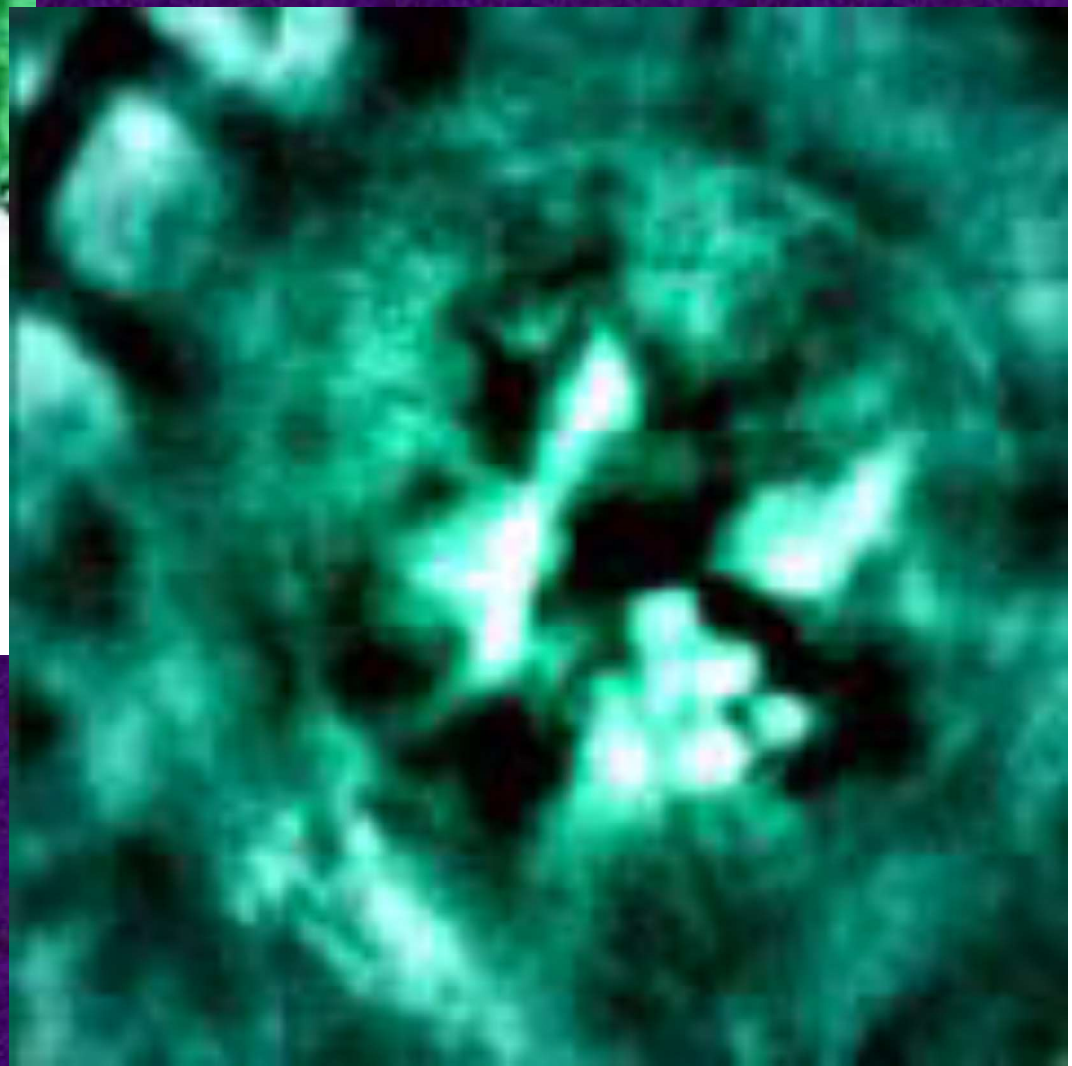


Cerilly (F) - tumulus



M

E



Všestudy (ME) – rozorané mohylové pohřebiště (rizika orby i změn využívání krajiny)

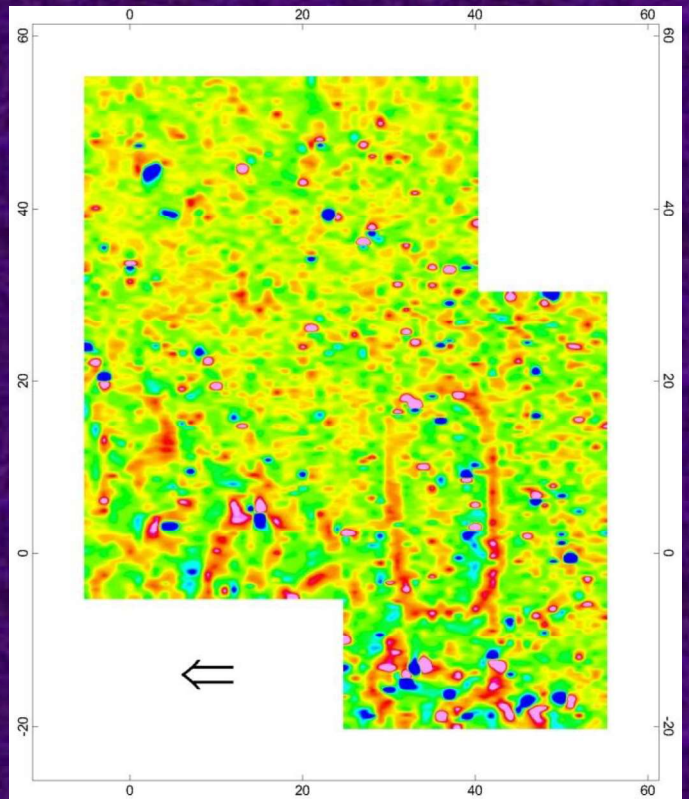






Vražkov (LT) – ověření tvaru a rozměrů pravděpodobných mohyl

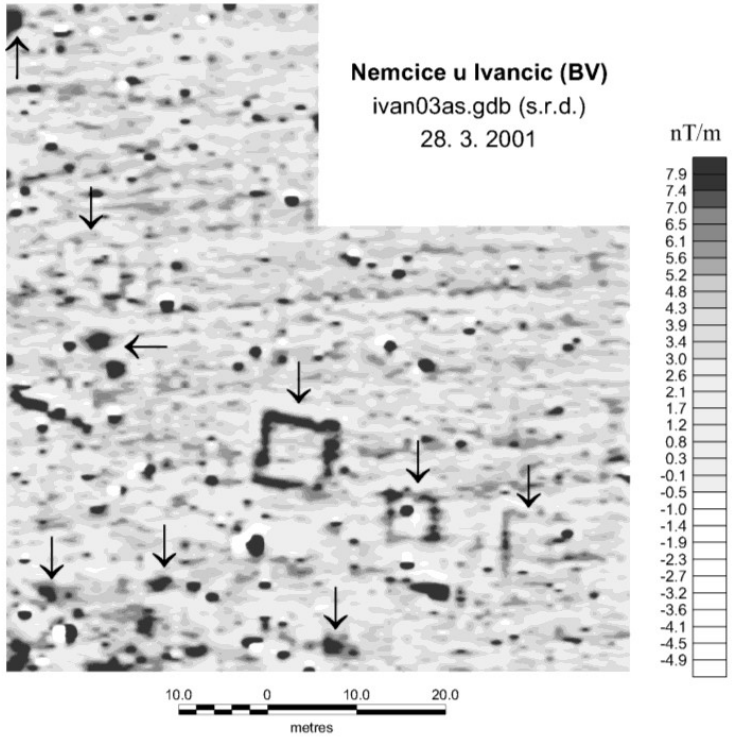


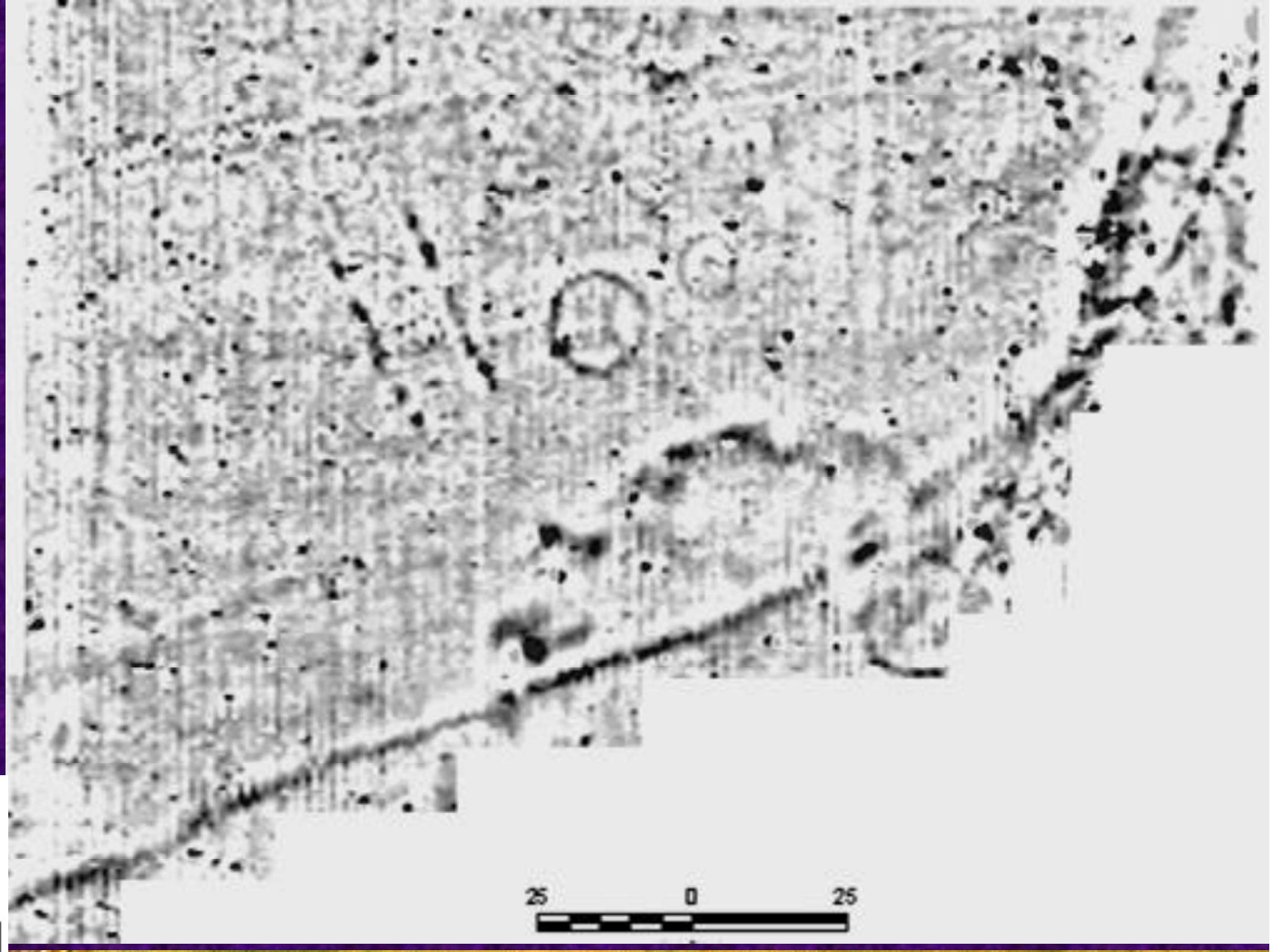




Hrdly (LT)

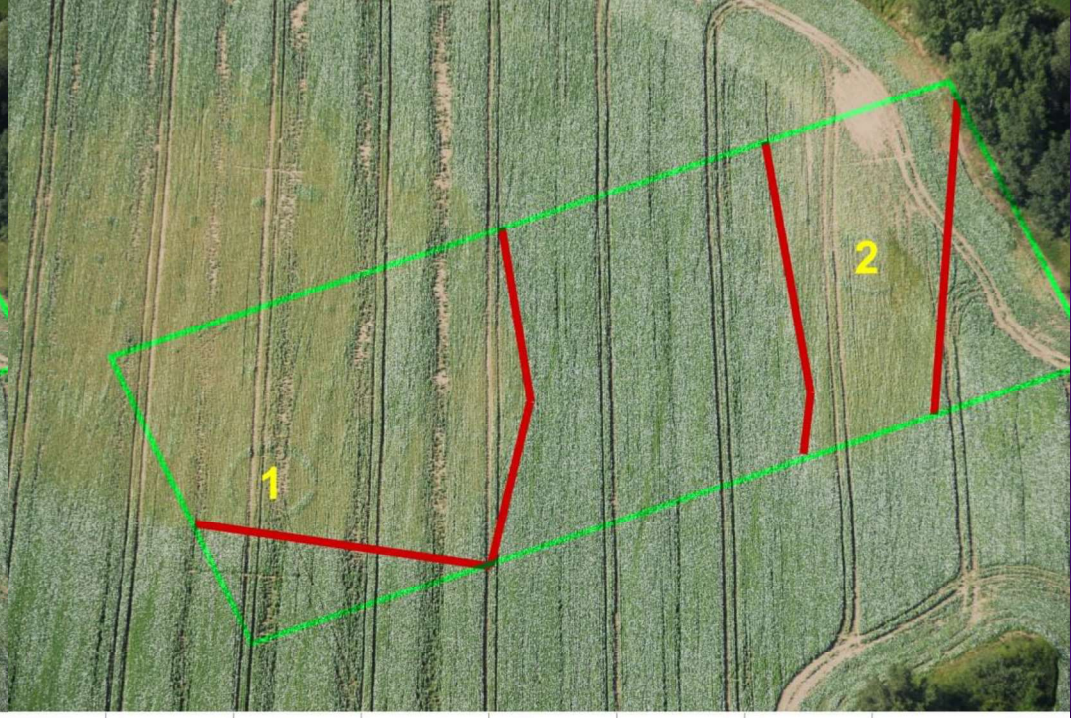
Němčice (BV)

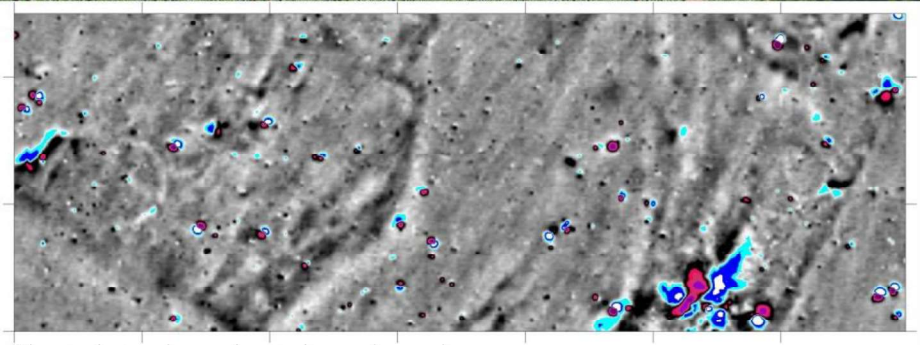


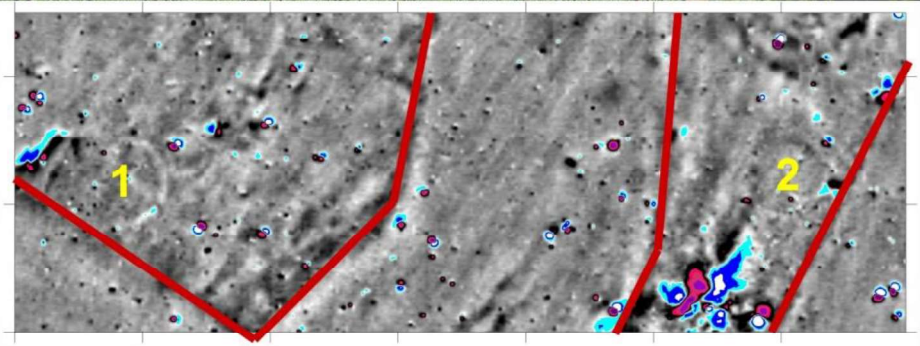


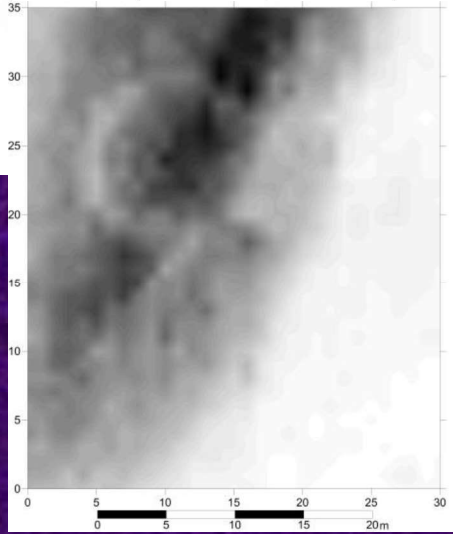


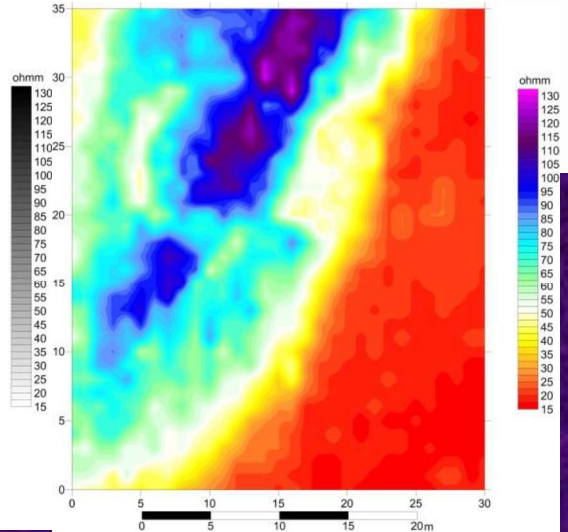


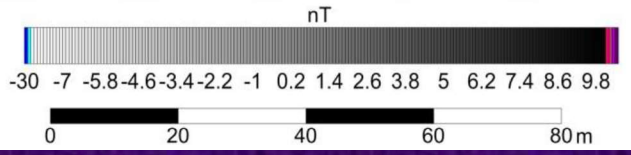




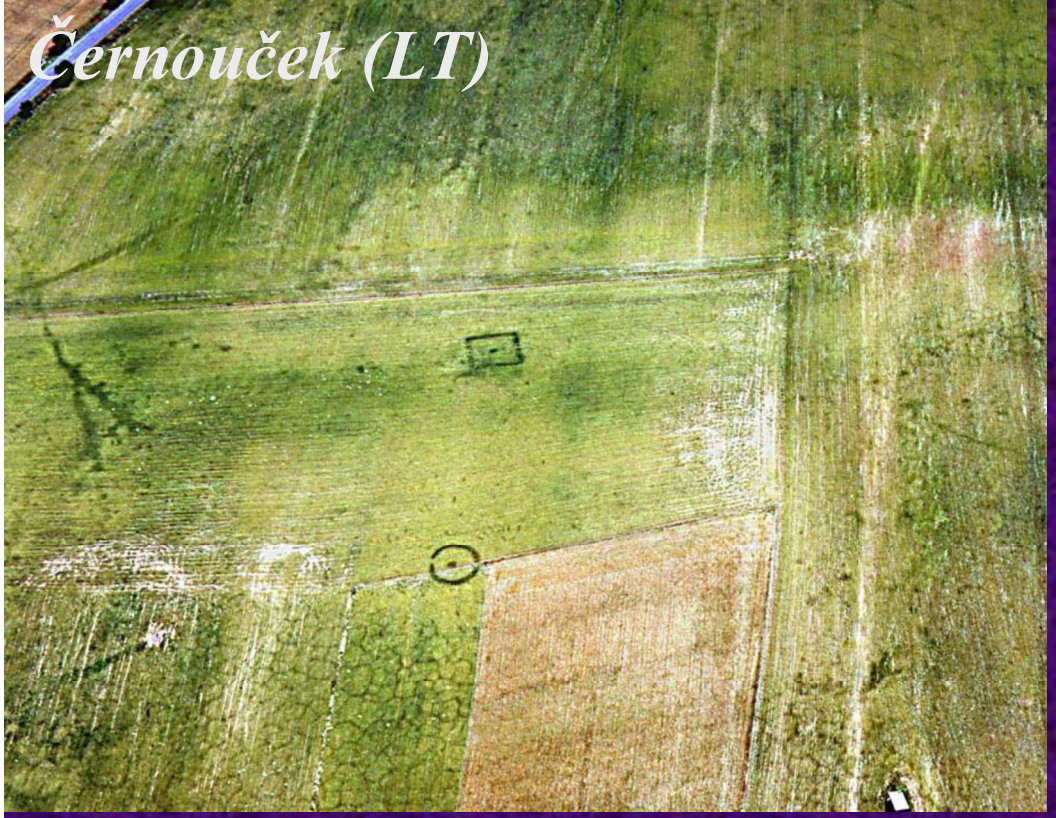


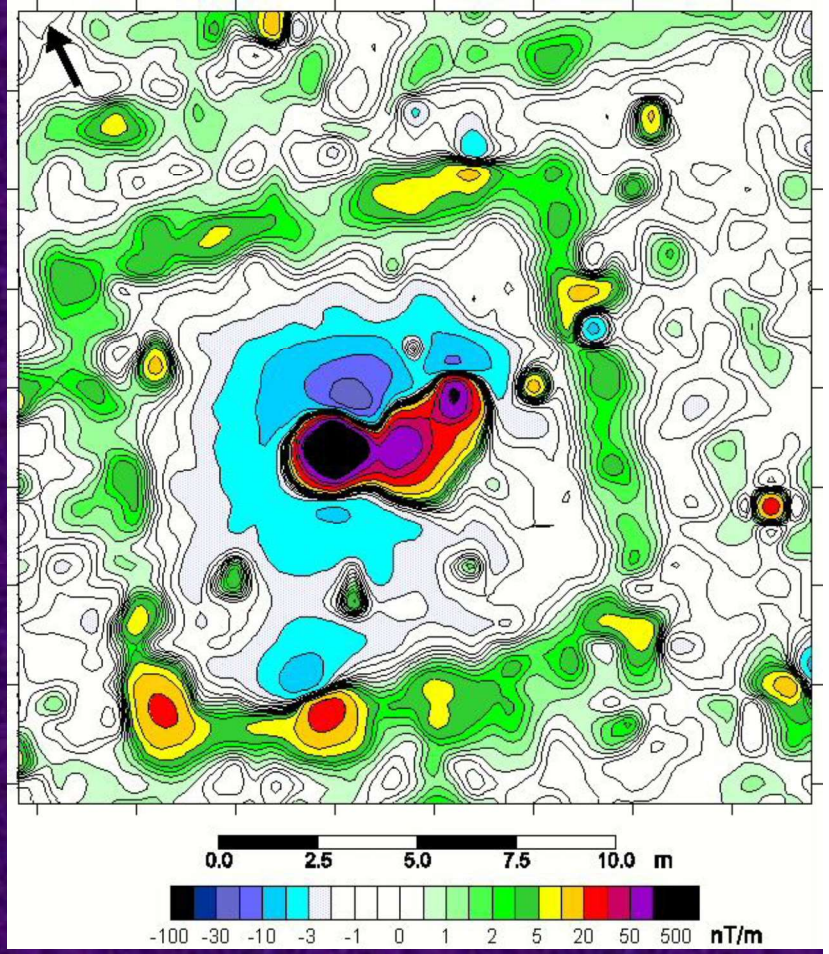


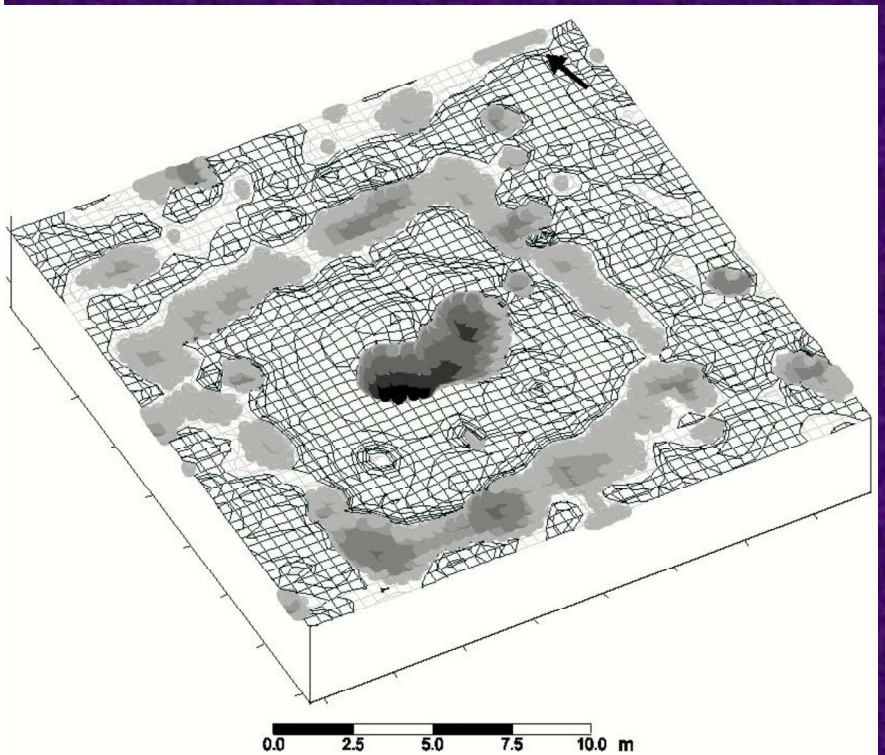




Hrdly (LT) – ověření mohyl/ohrazení (?) a možnosti identifikace situací v záplavovém území

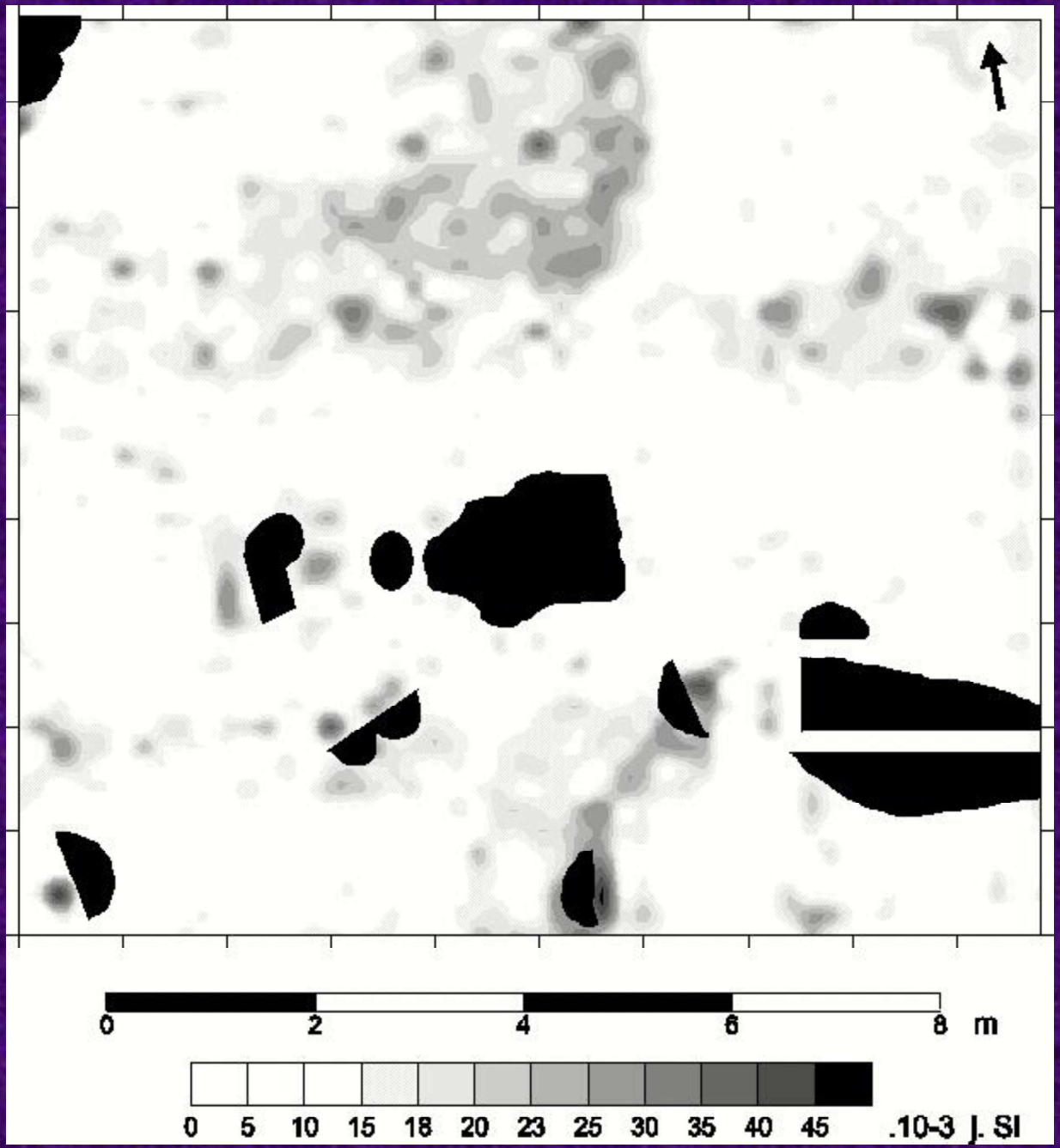

Černouček (LT)

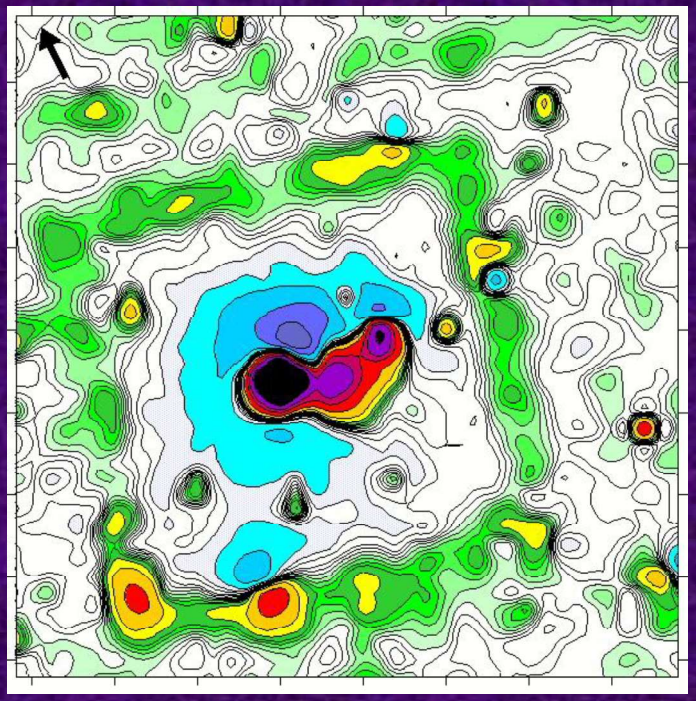

0.0 2.5 5.0 7.5 10.0 m
-100 -30 -10 -3 -1 0 1 2 5 20 50 500 nT/m


0.0 2.5 5.0 7.5 10.0 m

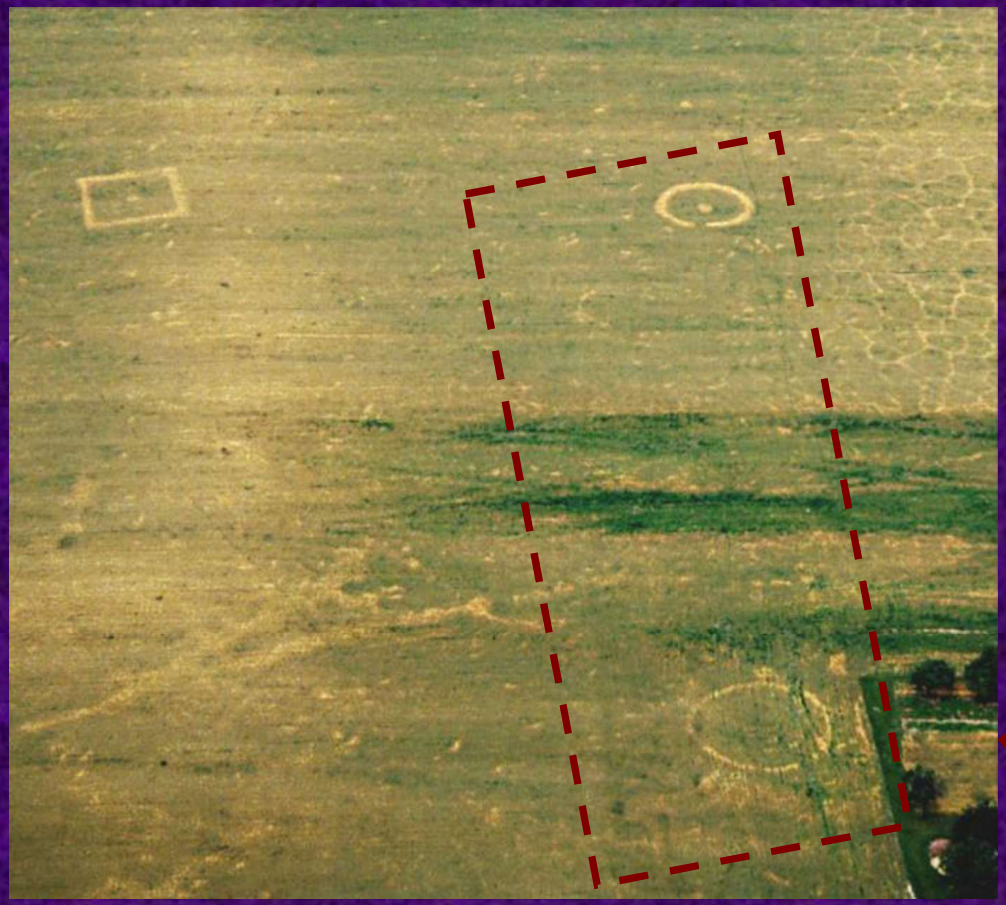


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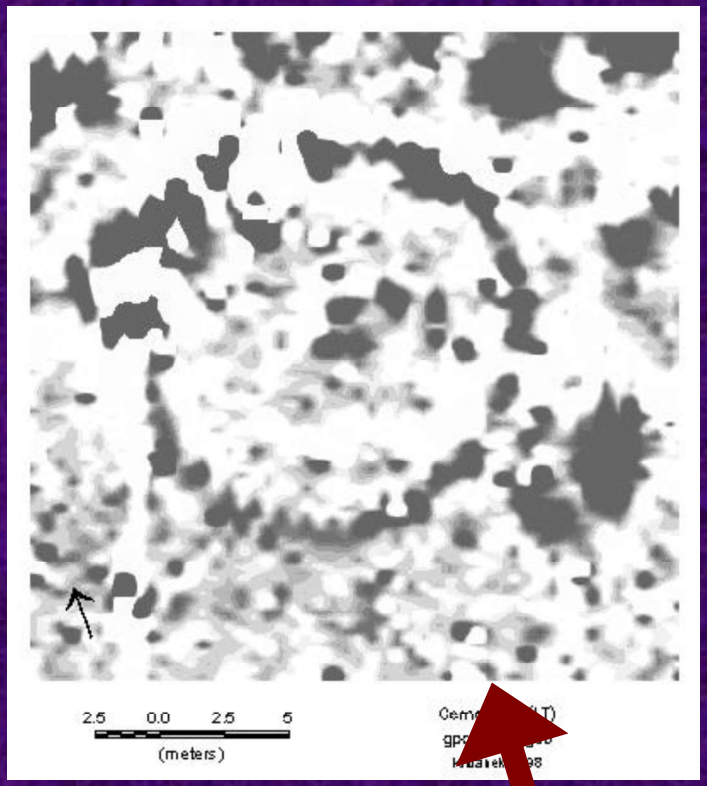




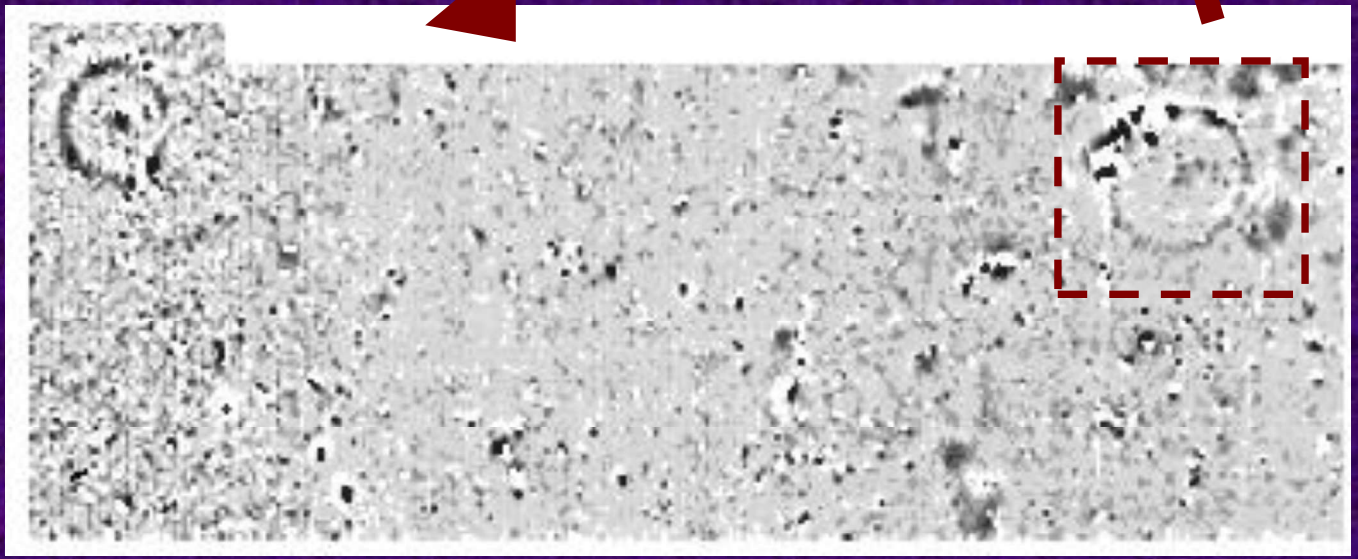
Černouček (LT)



LS

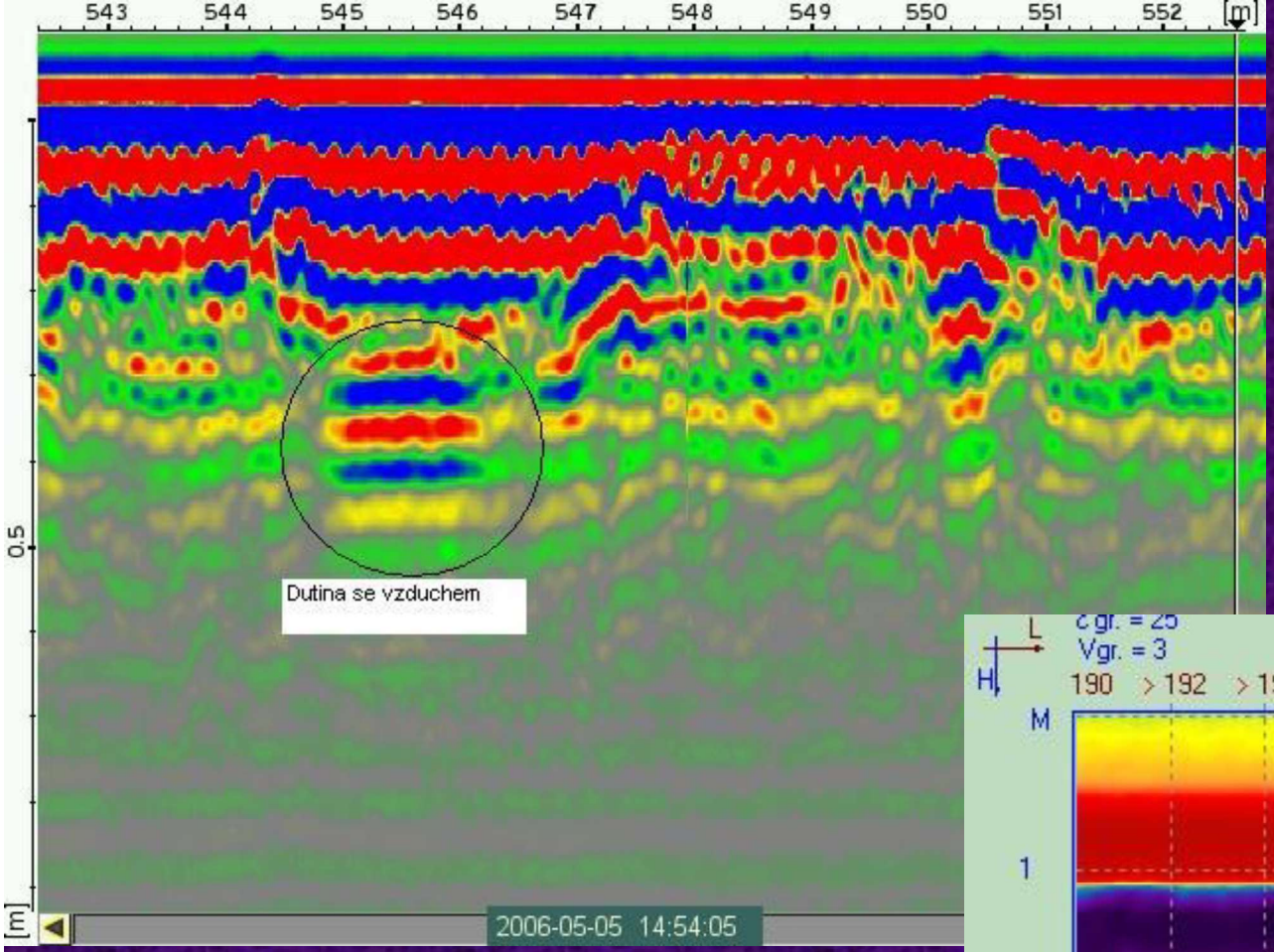


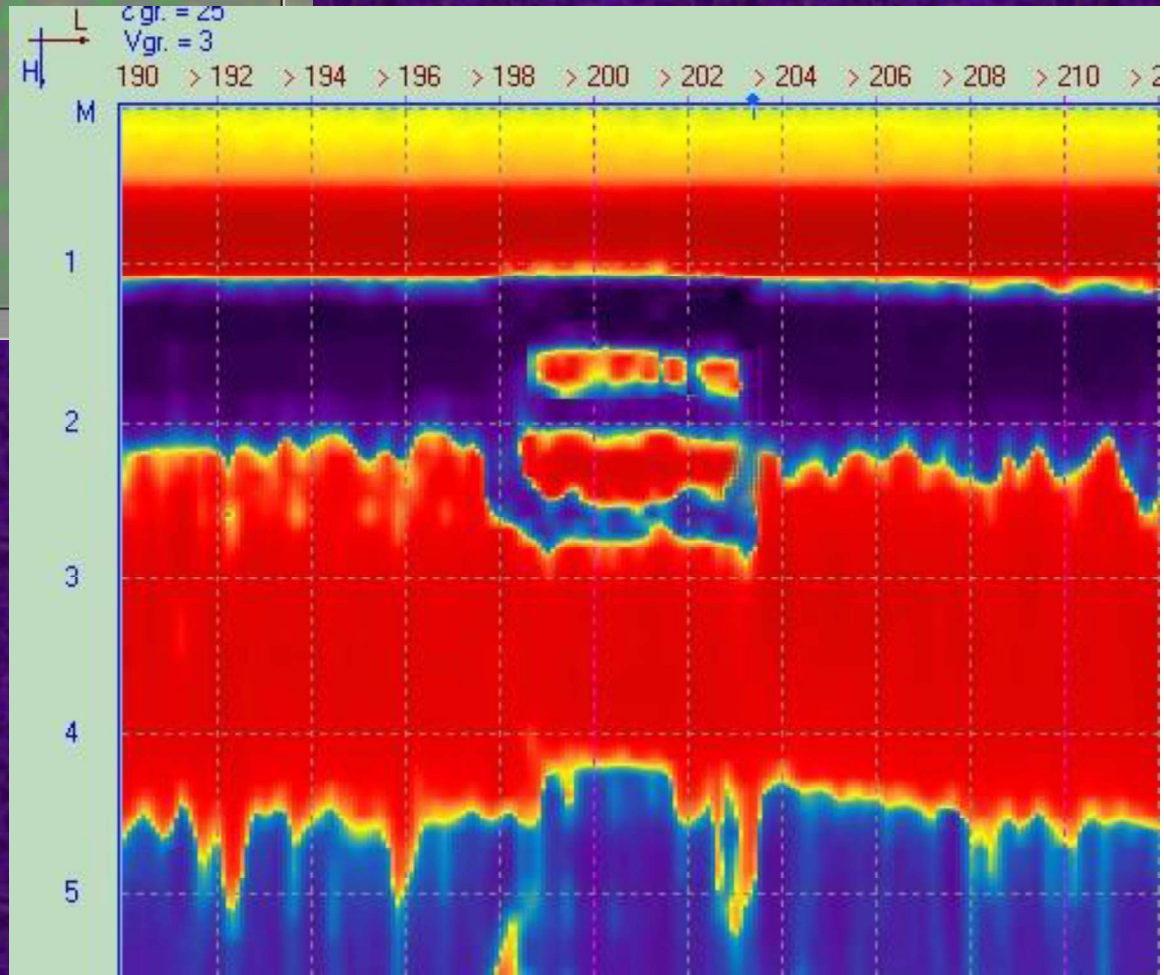
GF



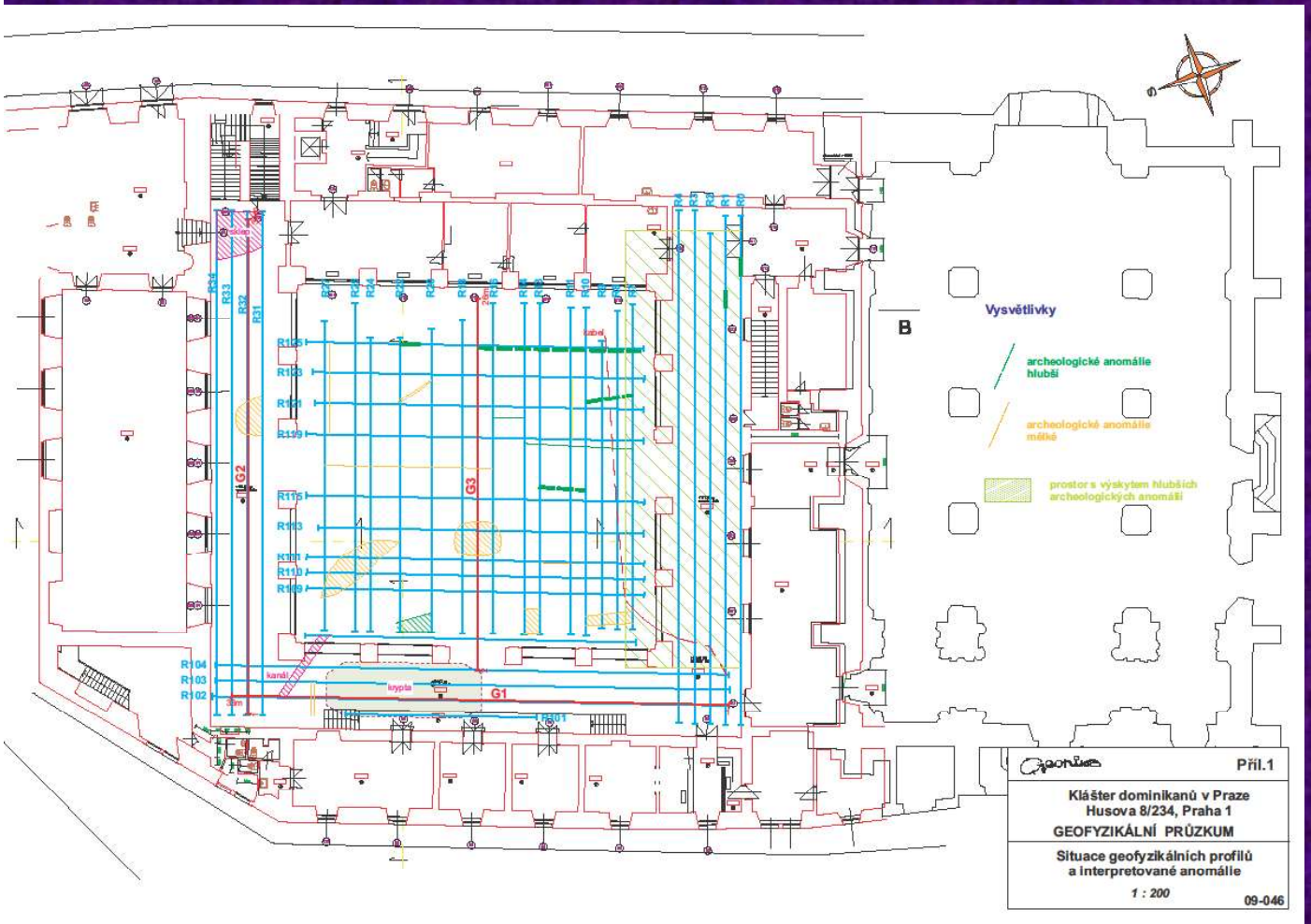
Hrobky

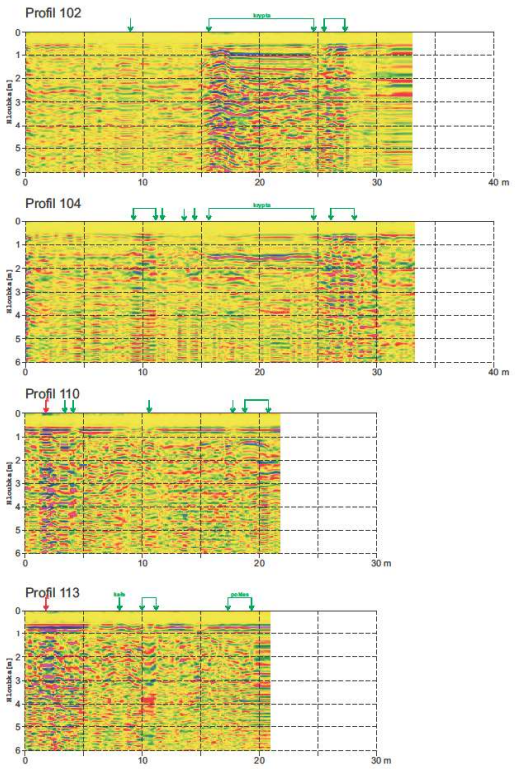
Detekce hrobek radarem

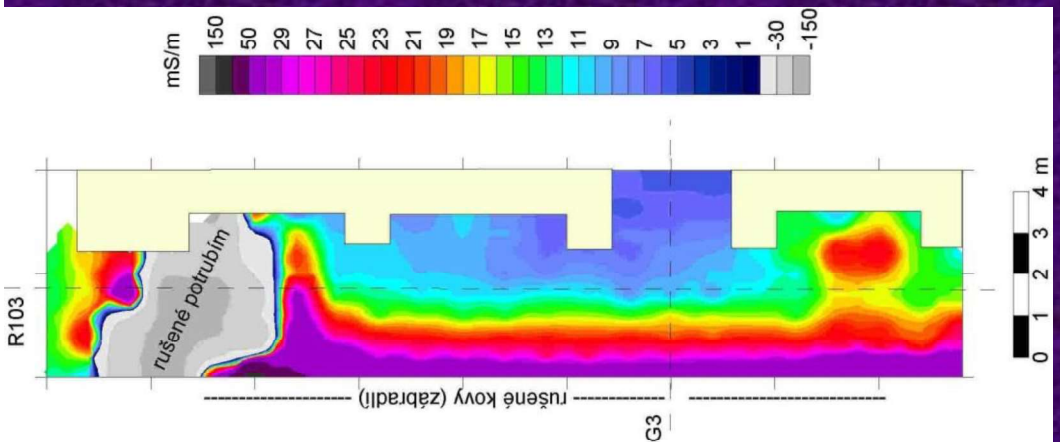


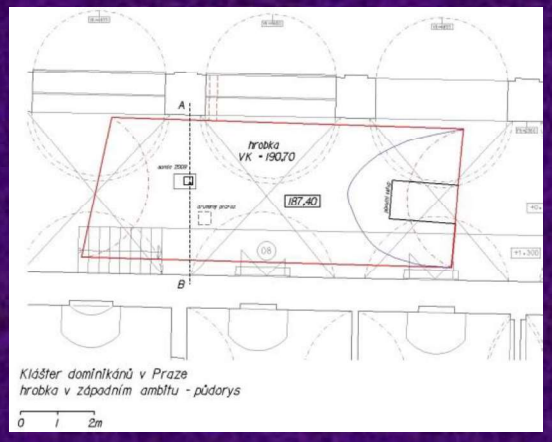


Dominikánský klášter (P1)



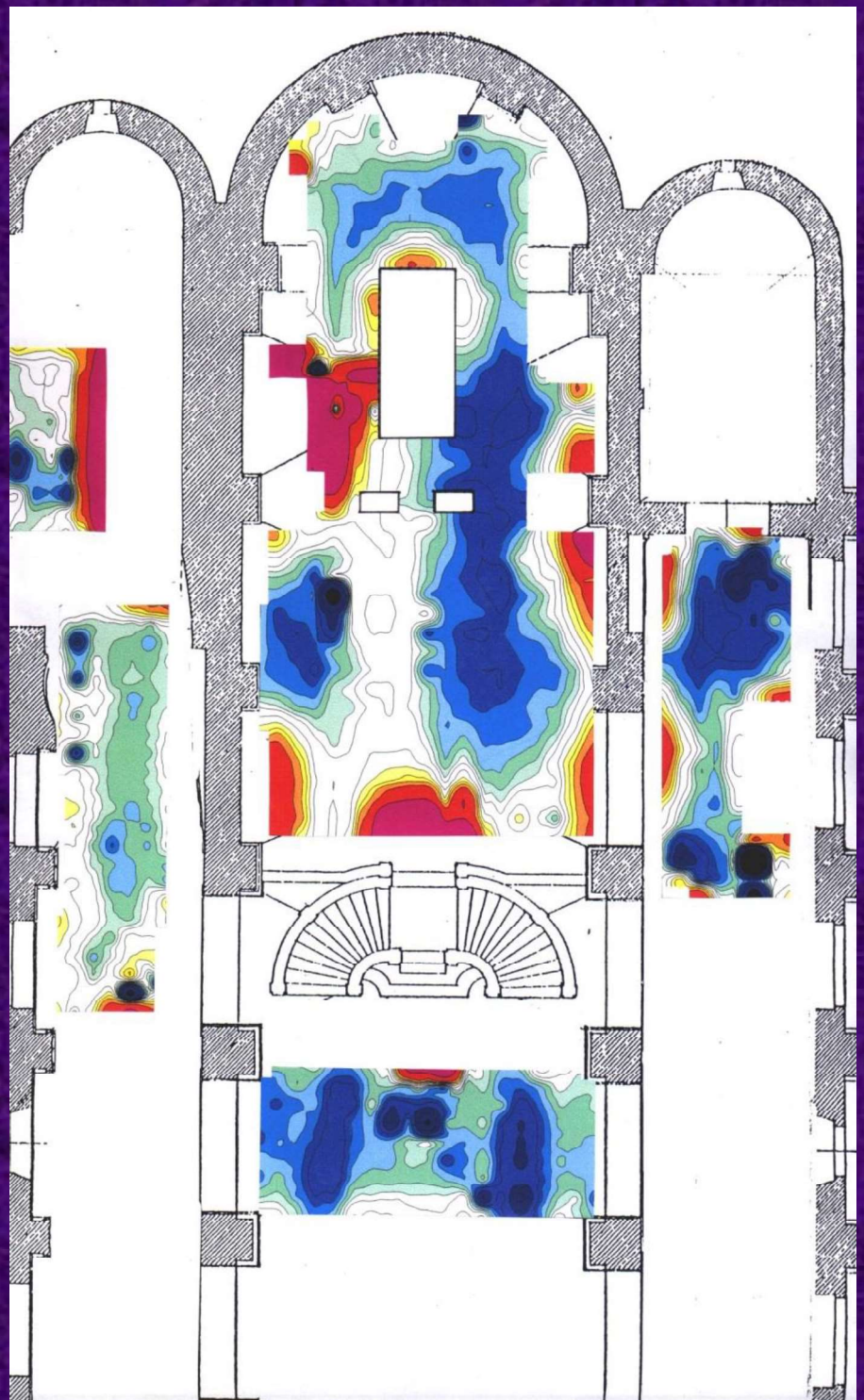


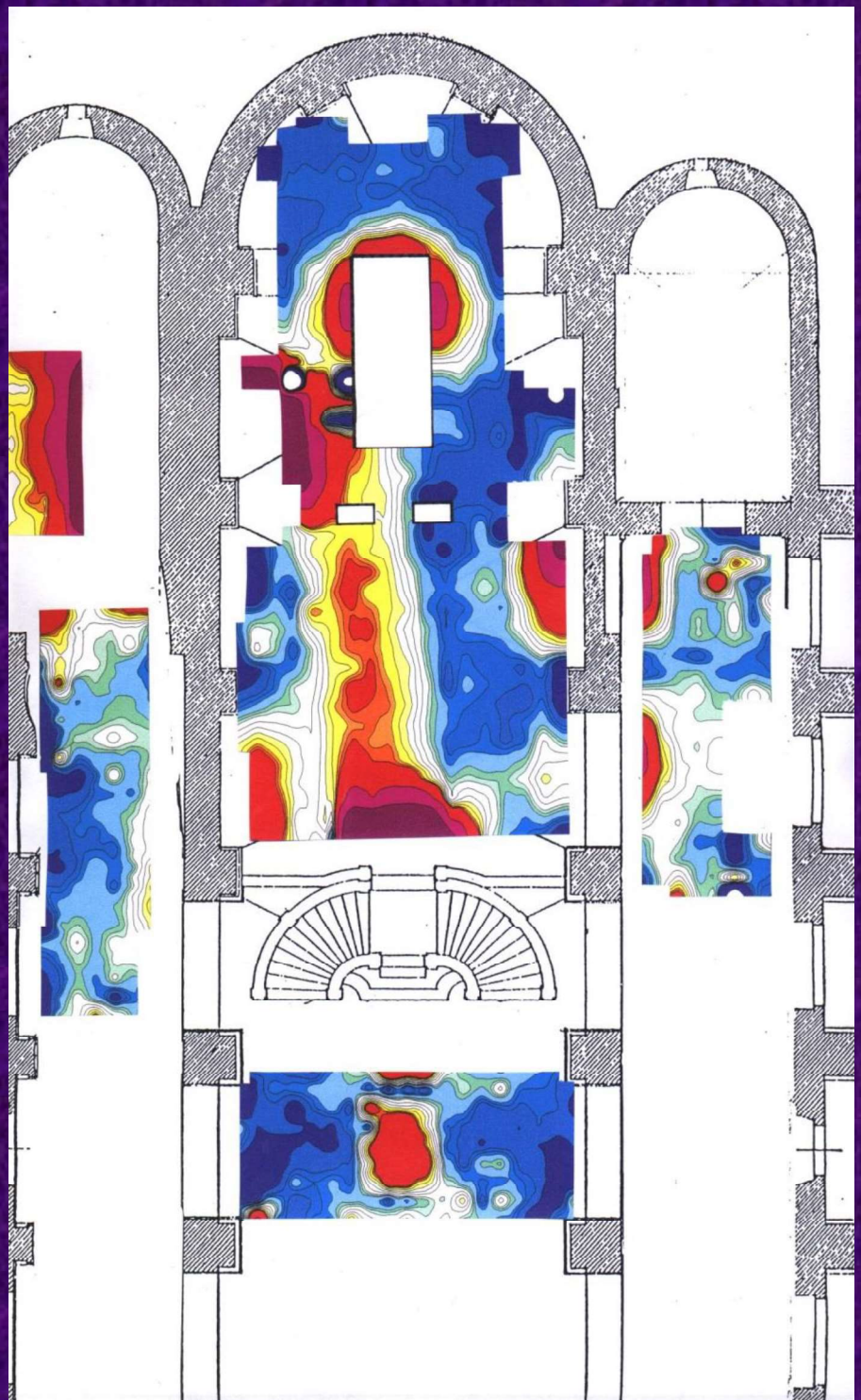




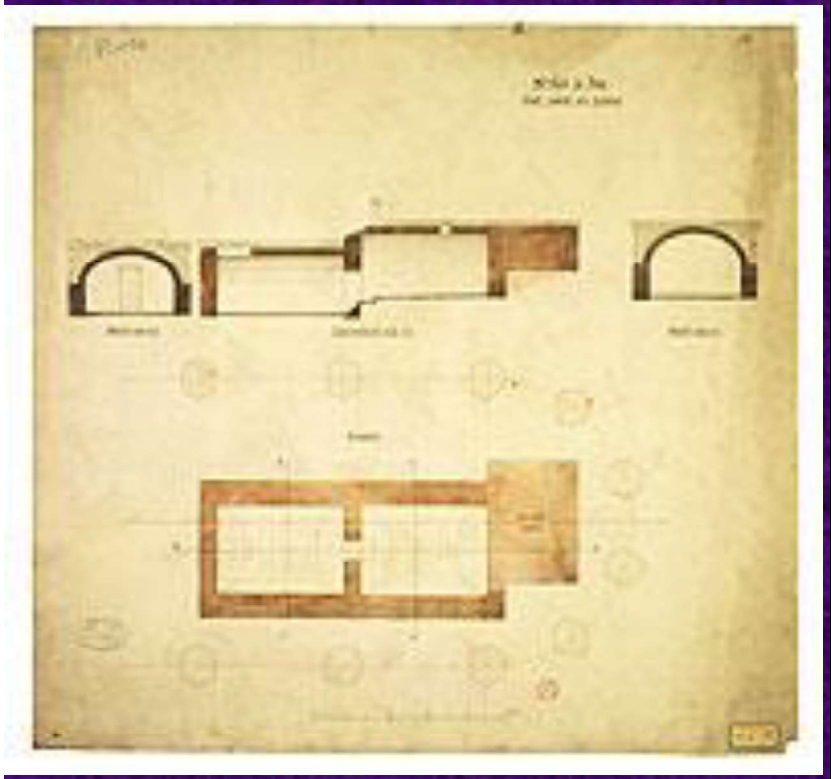


St. Boleslav (PV)



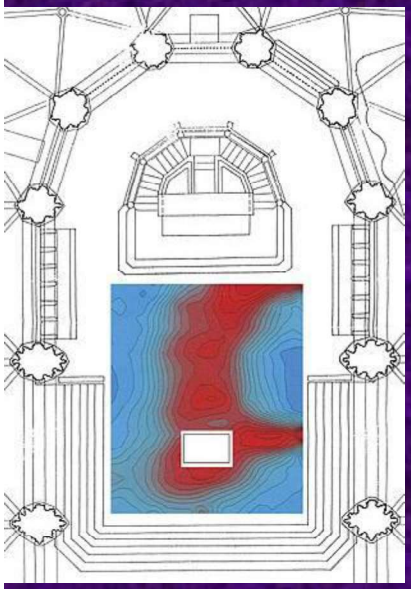
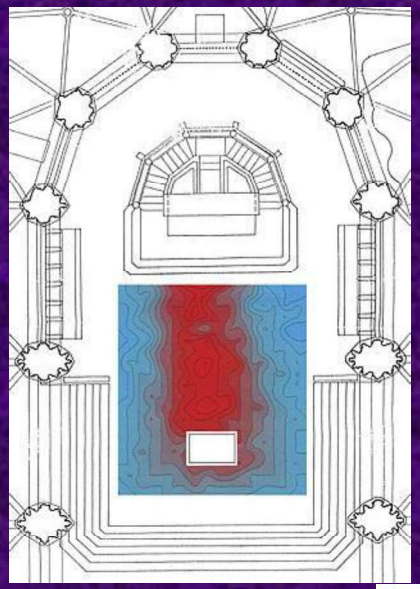
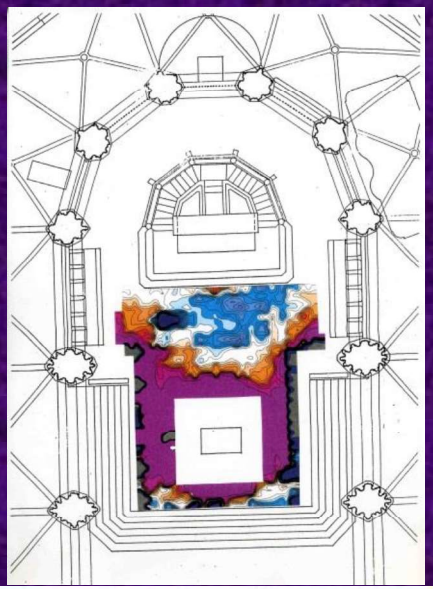
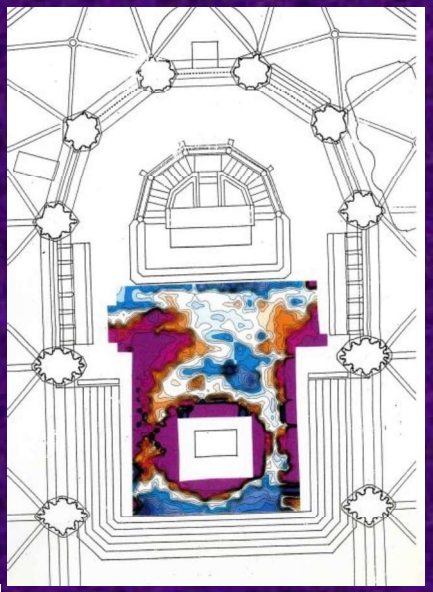
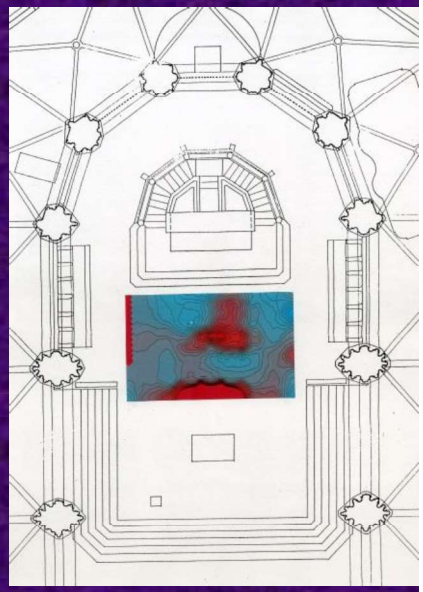
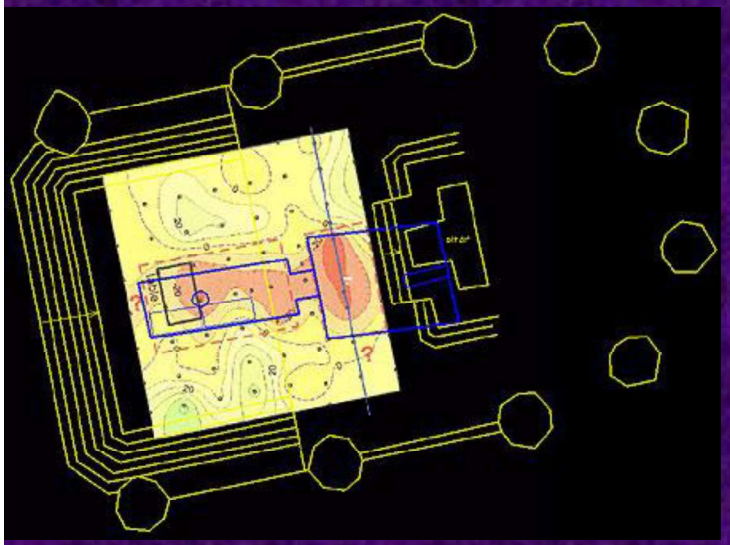


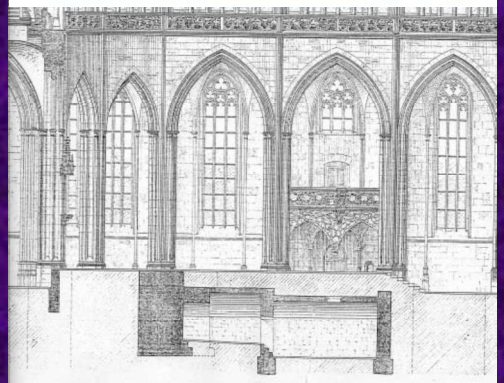
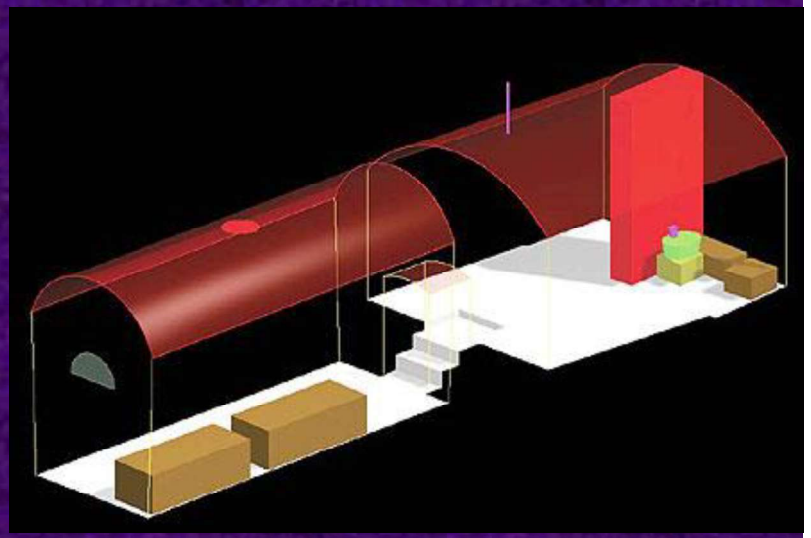
Praha-Hradčany (P1) – komplexní průzkum hrobky v katedrále sv. Víta



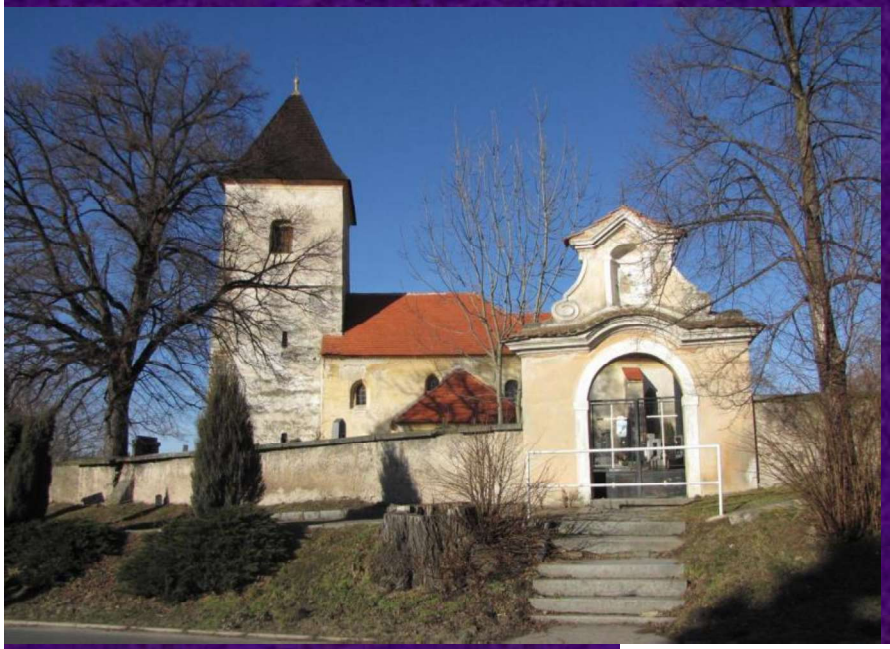


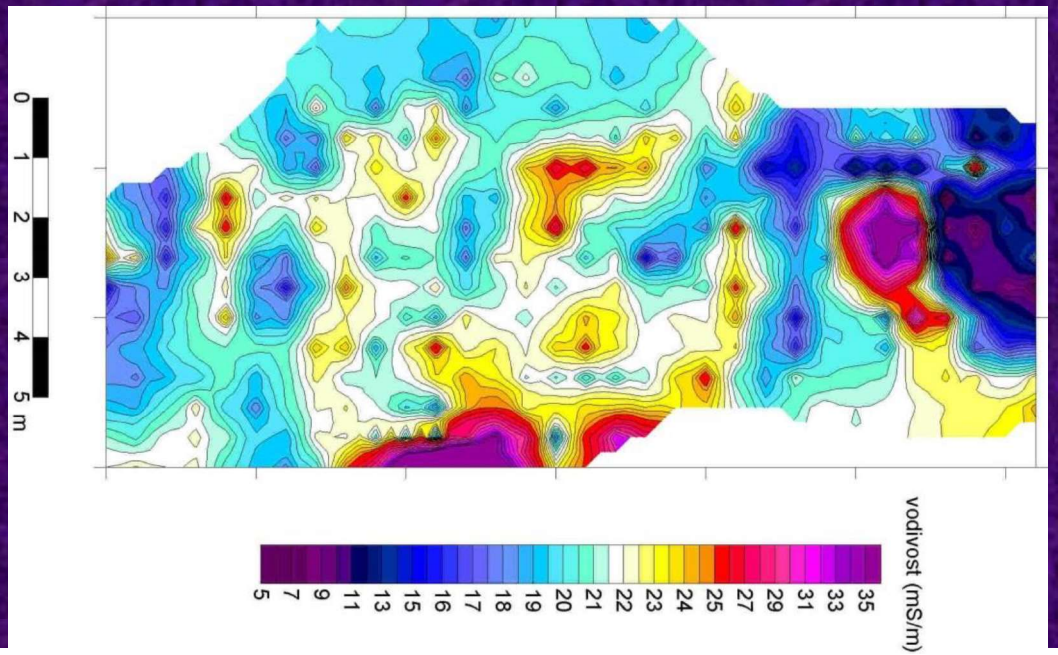
jednotlivé výstupy geofyzikálních metod, katedrála sv. Víta

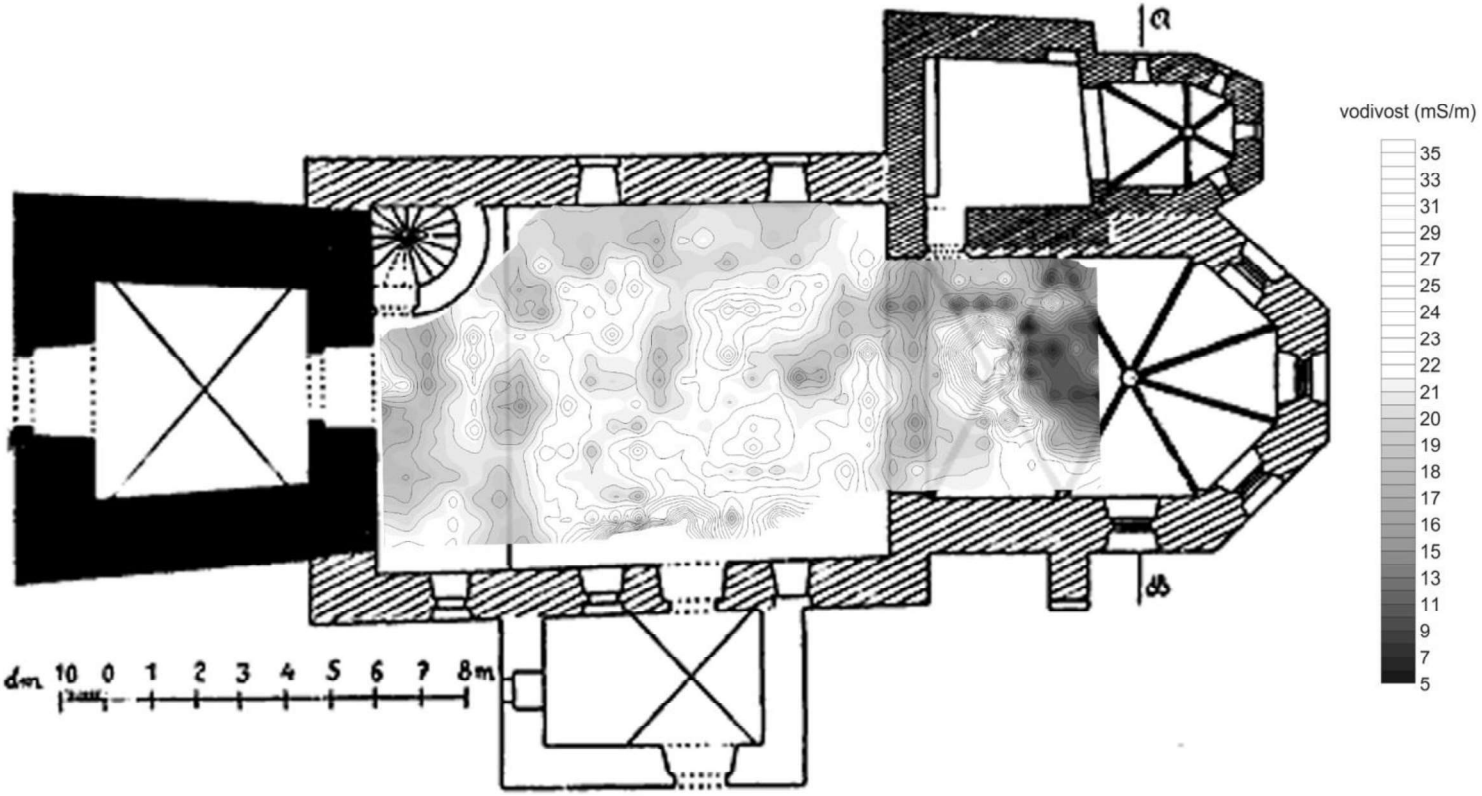







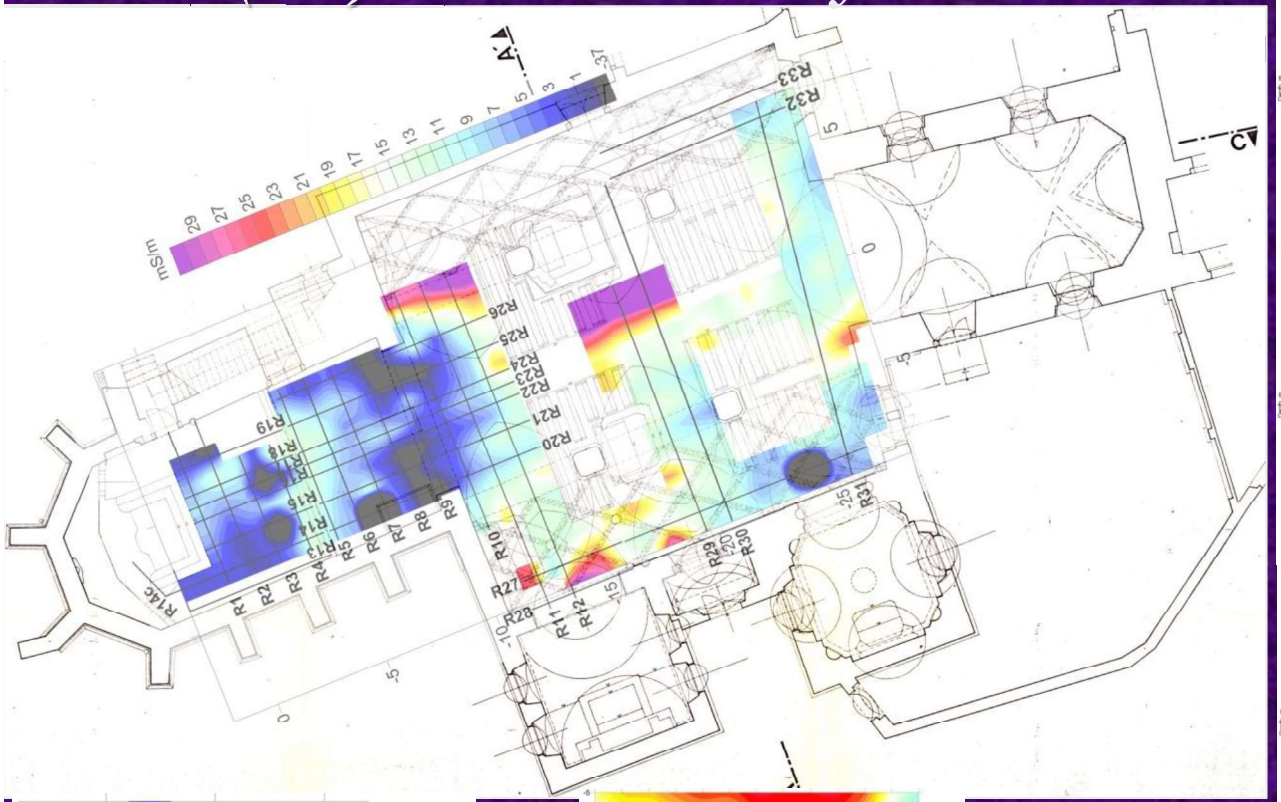
Lažany (CR) – kostel sv. Václavy, EM měření zdánl. měr. vodivosti (Křivánek 2006)

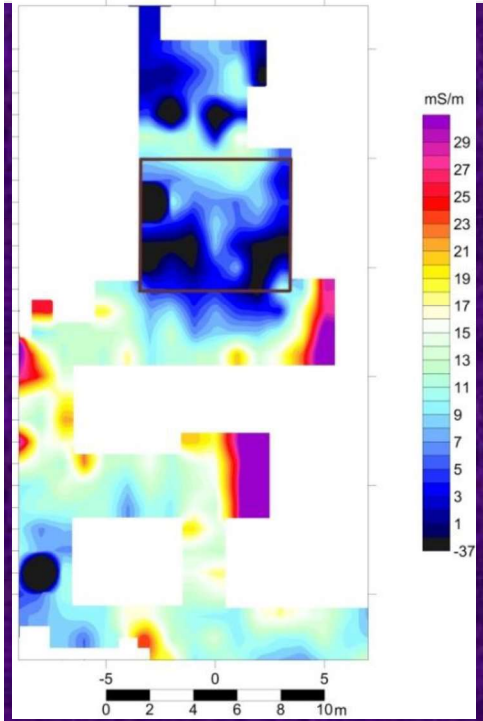


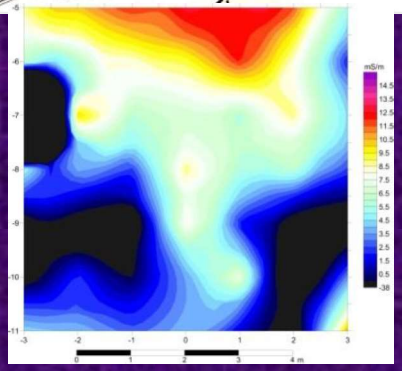




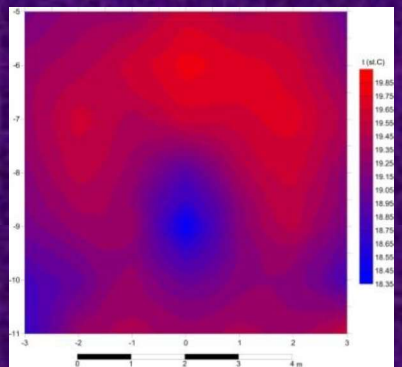
Kadaň (CV) – Františkánský klášter



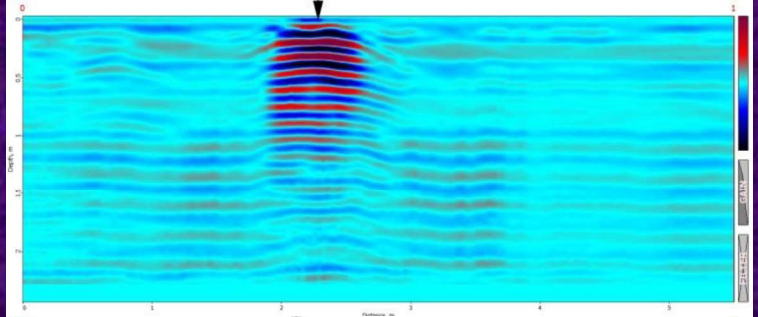




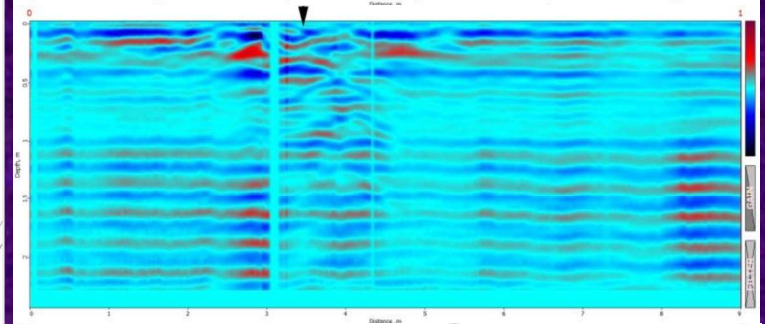
EM



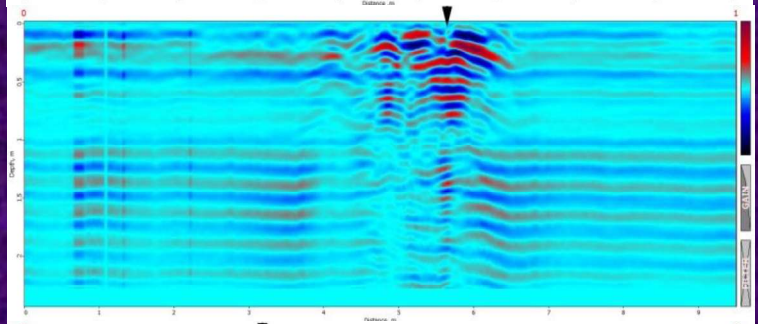
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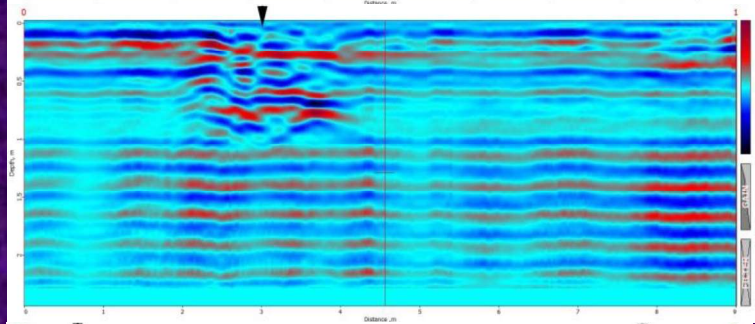
R8



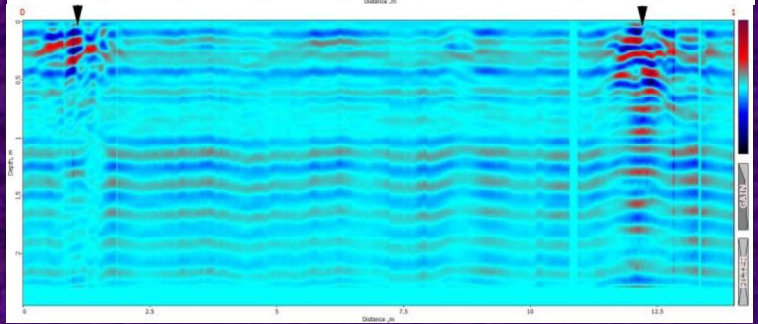
R20



R23

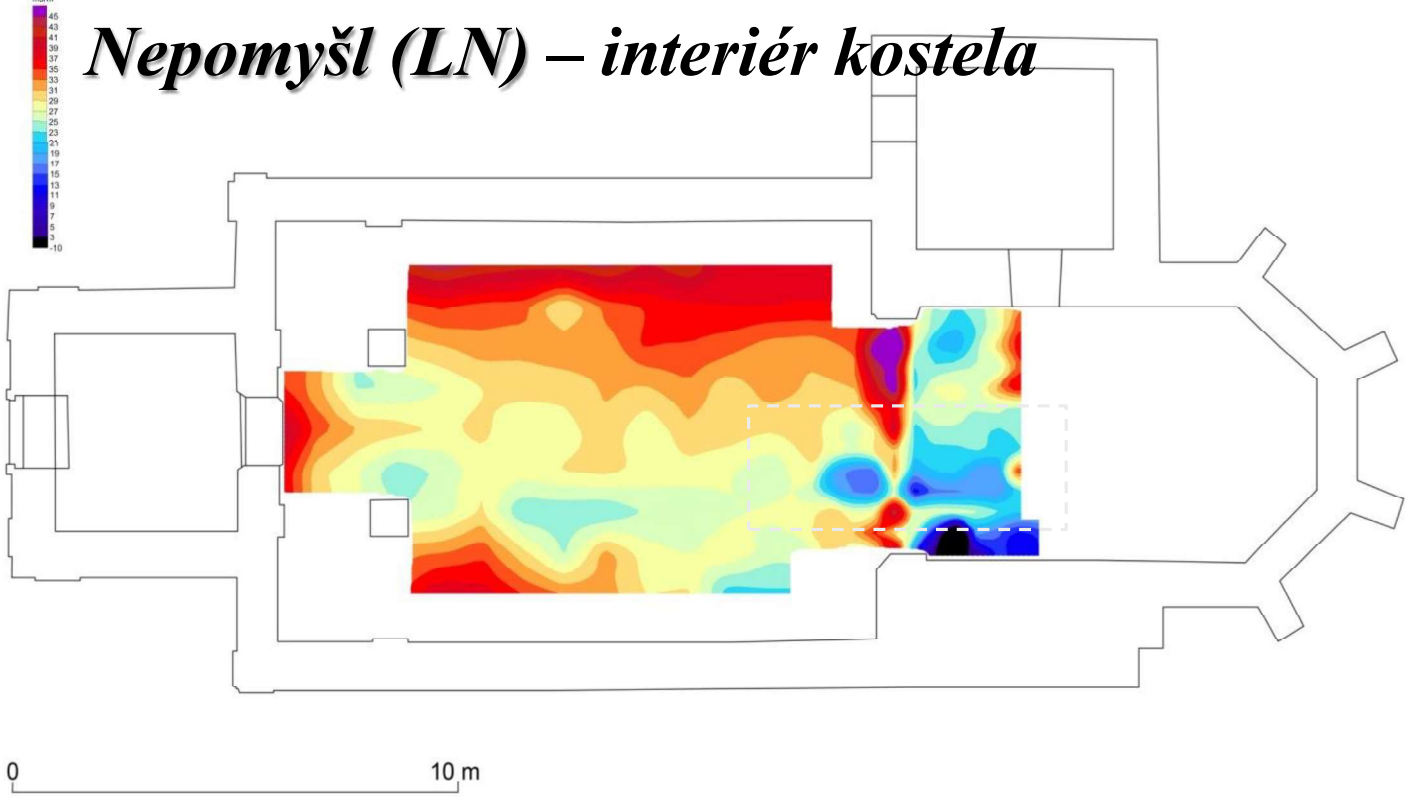


R26

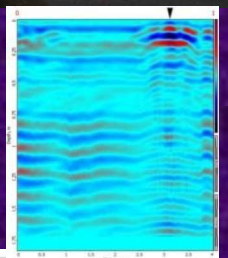


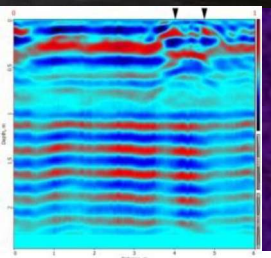
R28

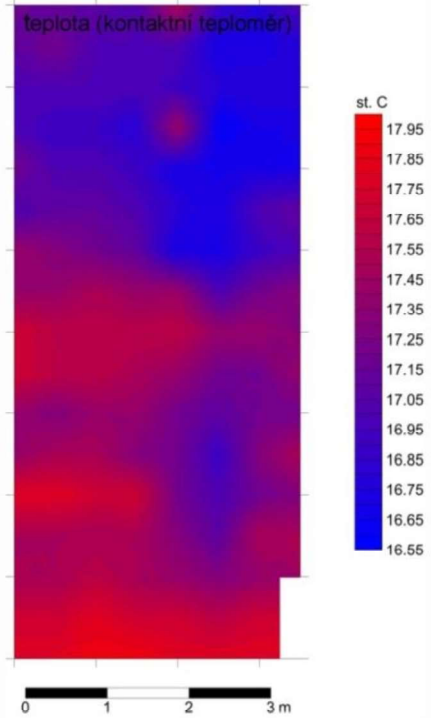
Nepomyšl (LN) – interiér kostela

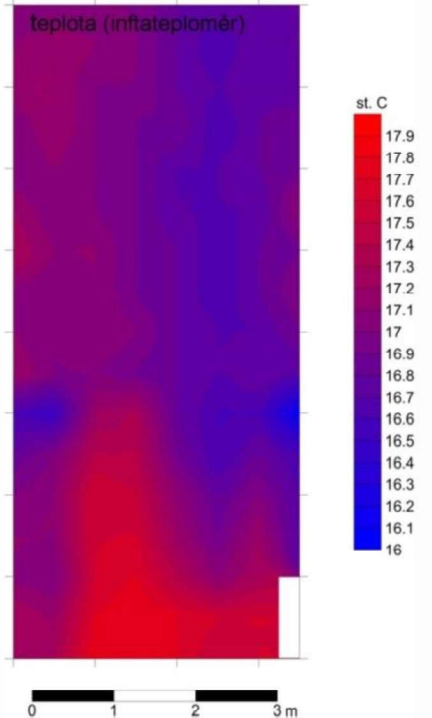


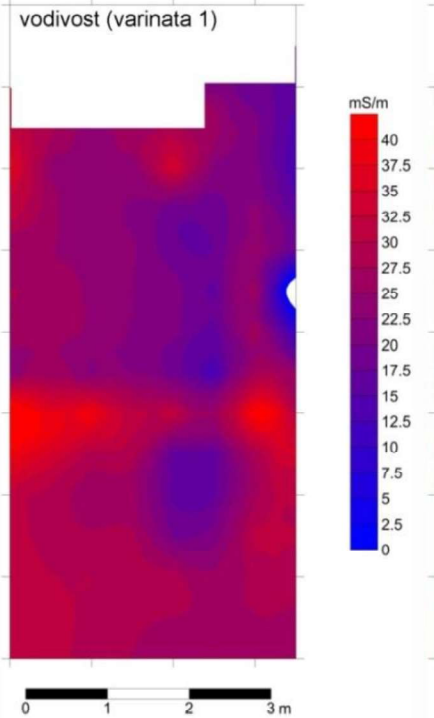


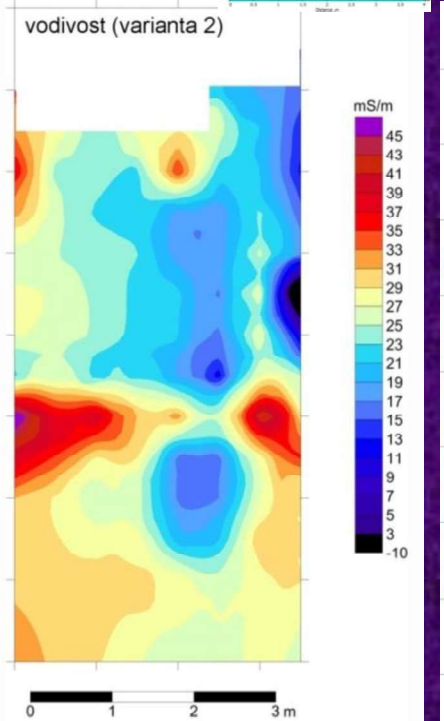


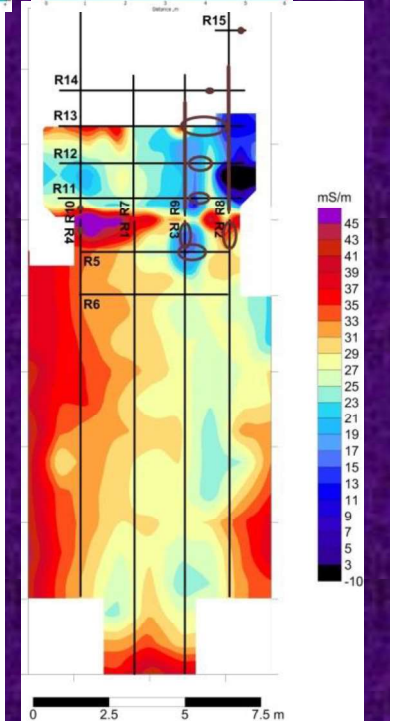






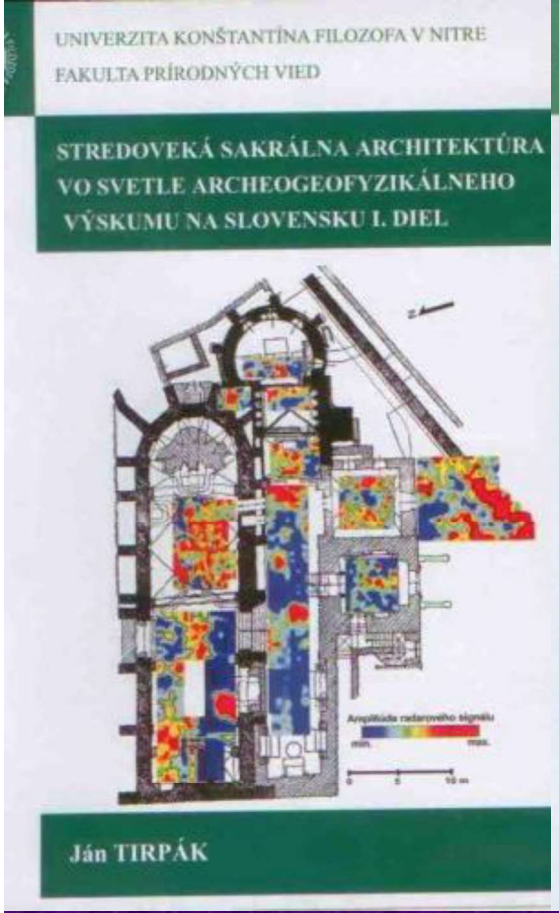


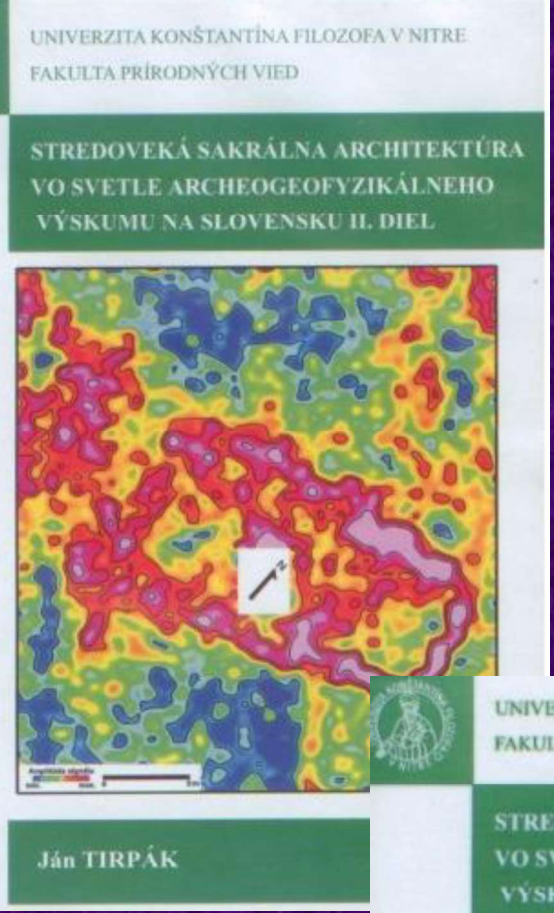


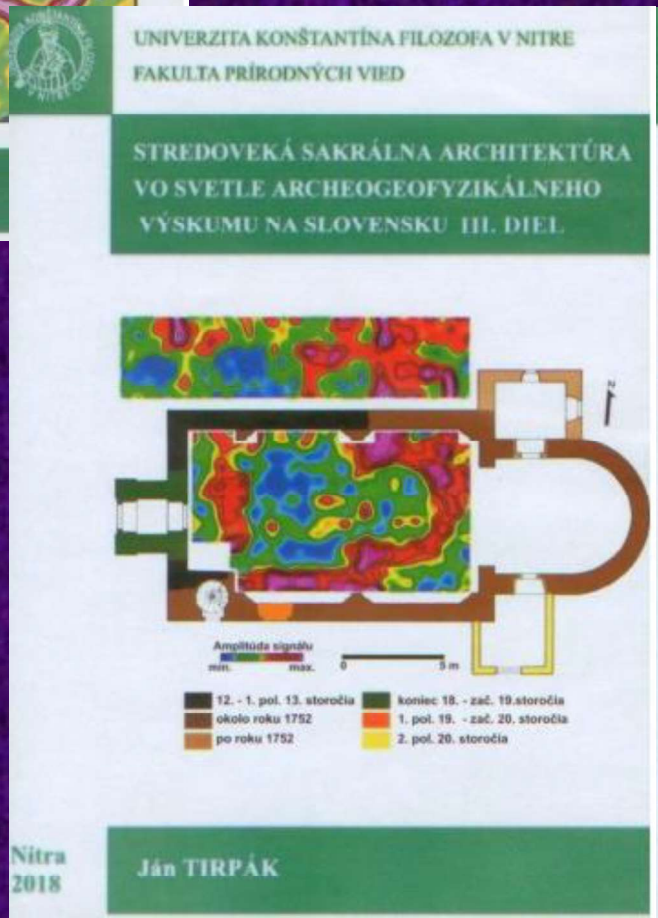


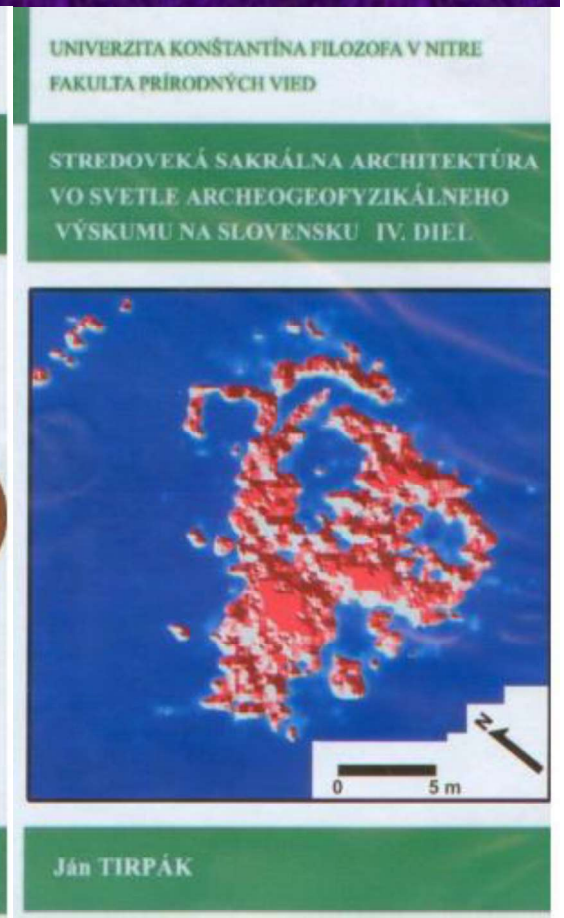
Slovensko – příklady výsledků radarových průzkumů zaniklé sakrální architektury

(Tirpák – UKF Nitra)





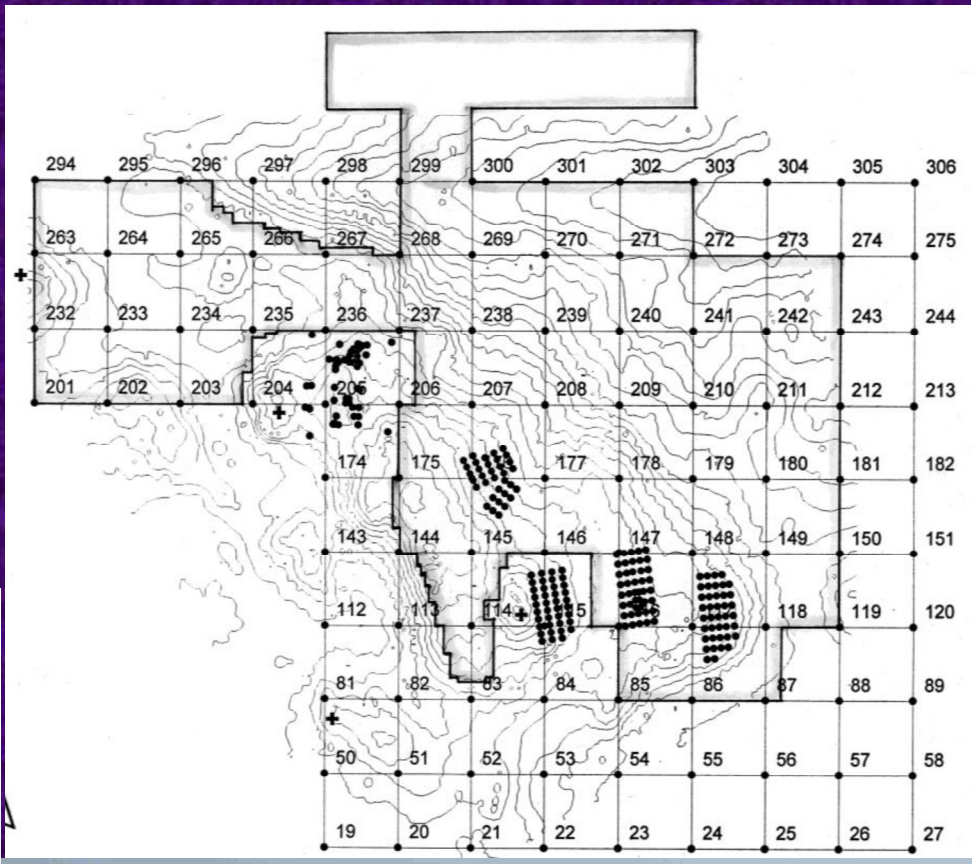




Egypt

J. Abusír

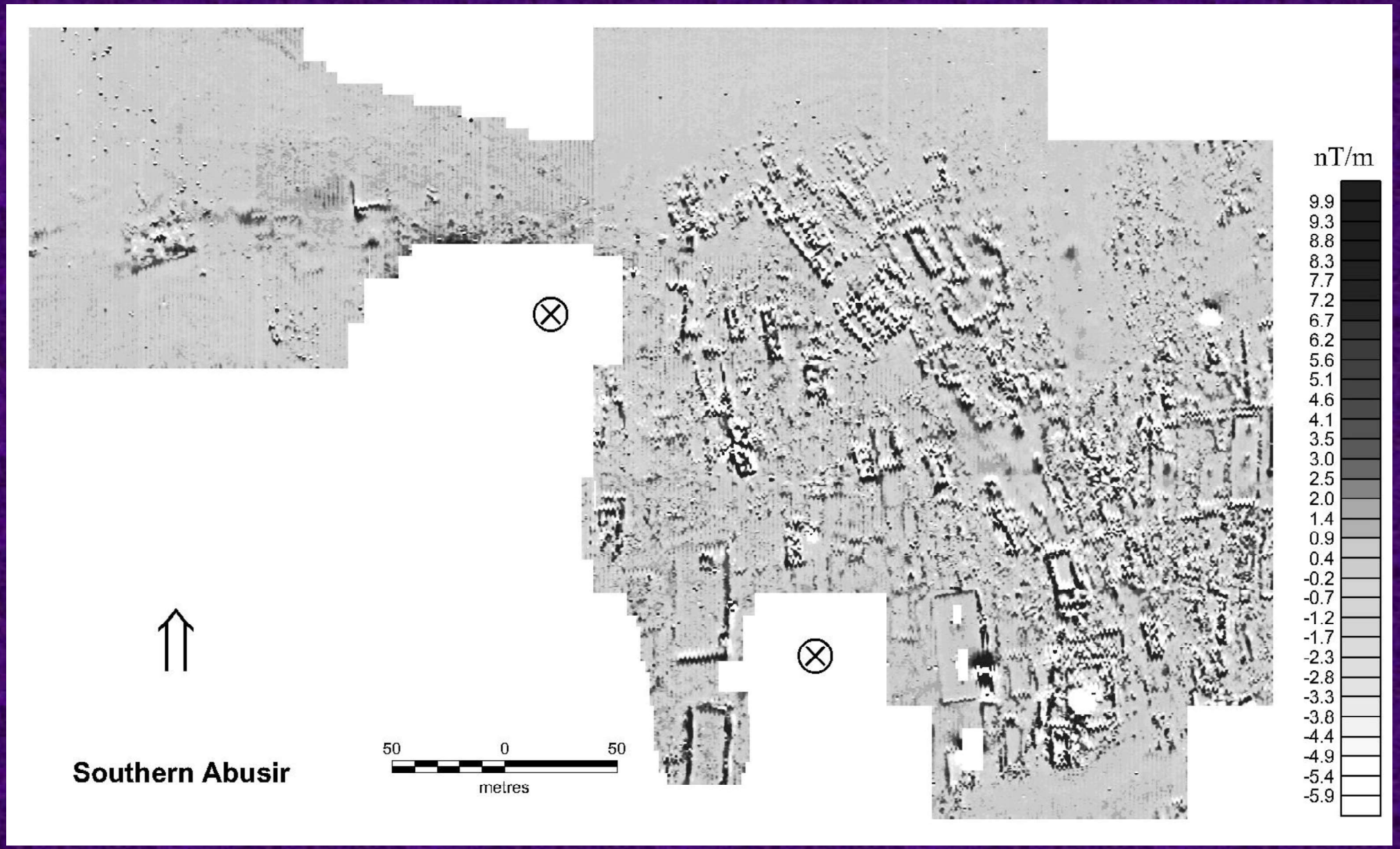



294 295 296 297 298 299 300 301 302 303 304 305 306
263 264 265 266 267 268 269 270 271 272 273 274 275
232 233 234 235 236 237 238 239 240 241 242 243 244
201 202 203 204 205 206 207 208 209 210 211 212 213
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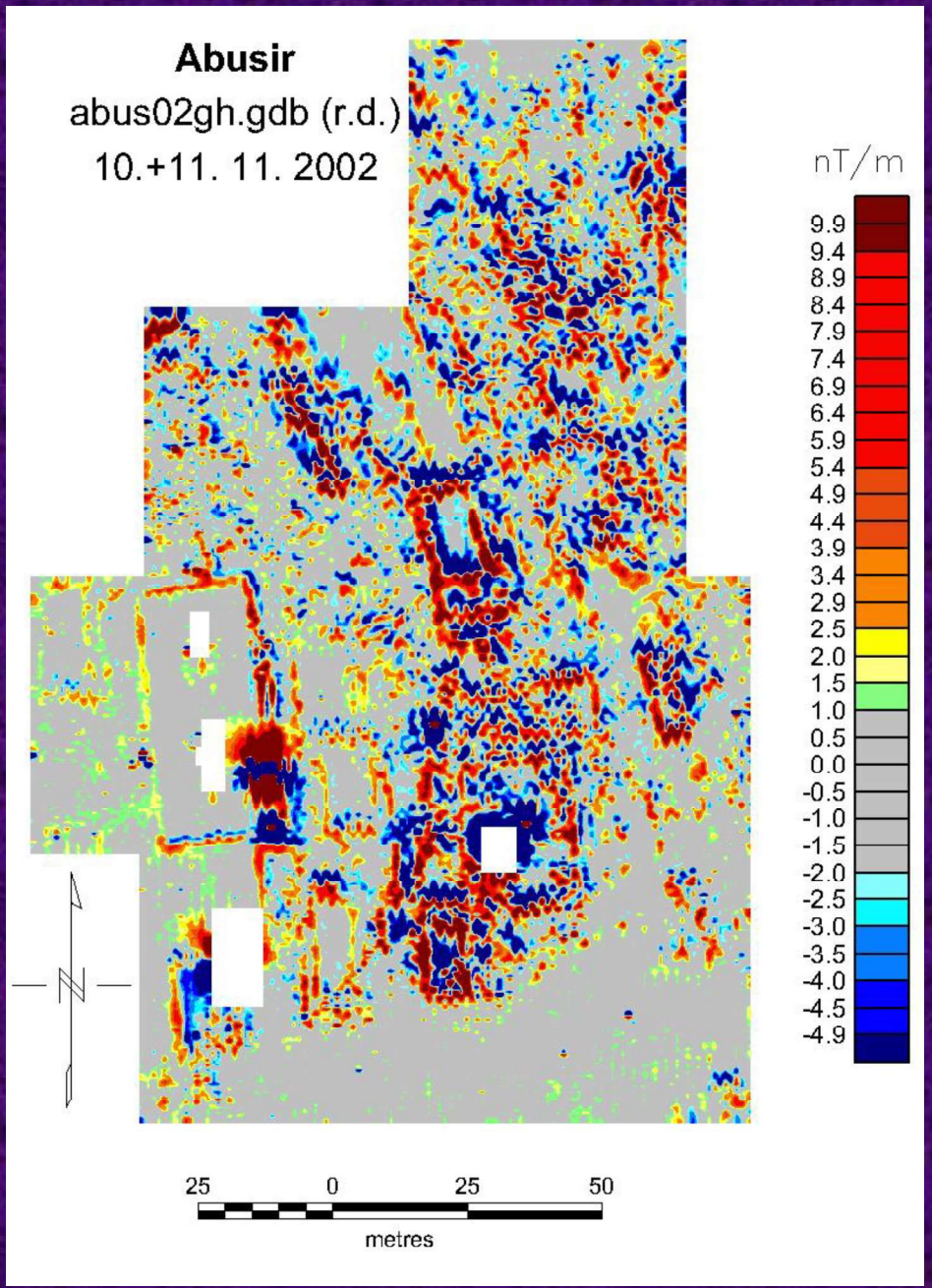


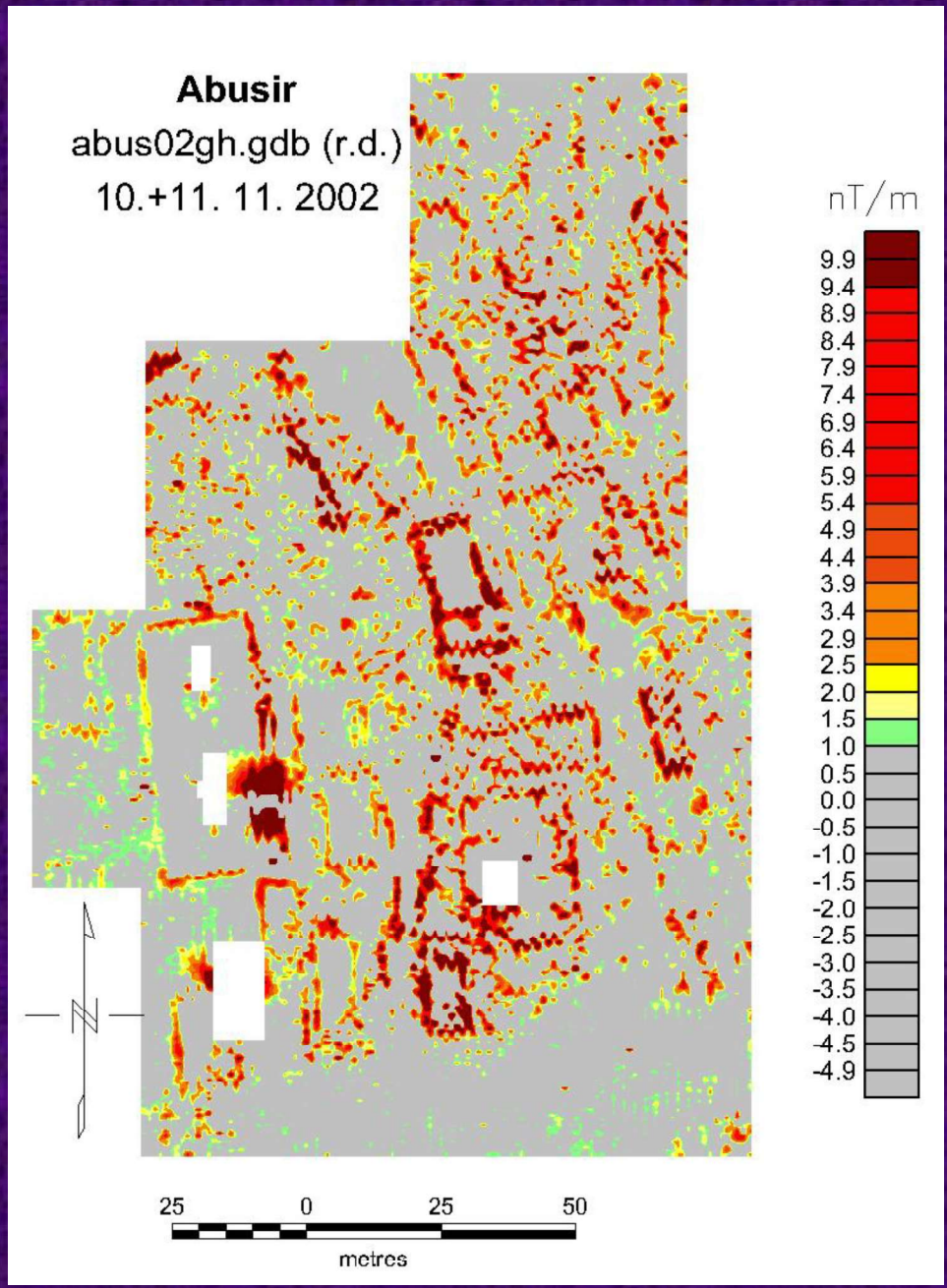
J. Abusír



plocha: 11,5 ha

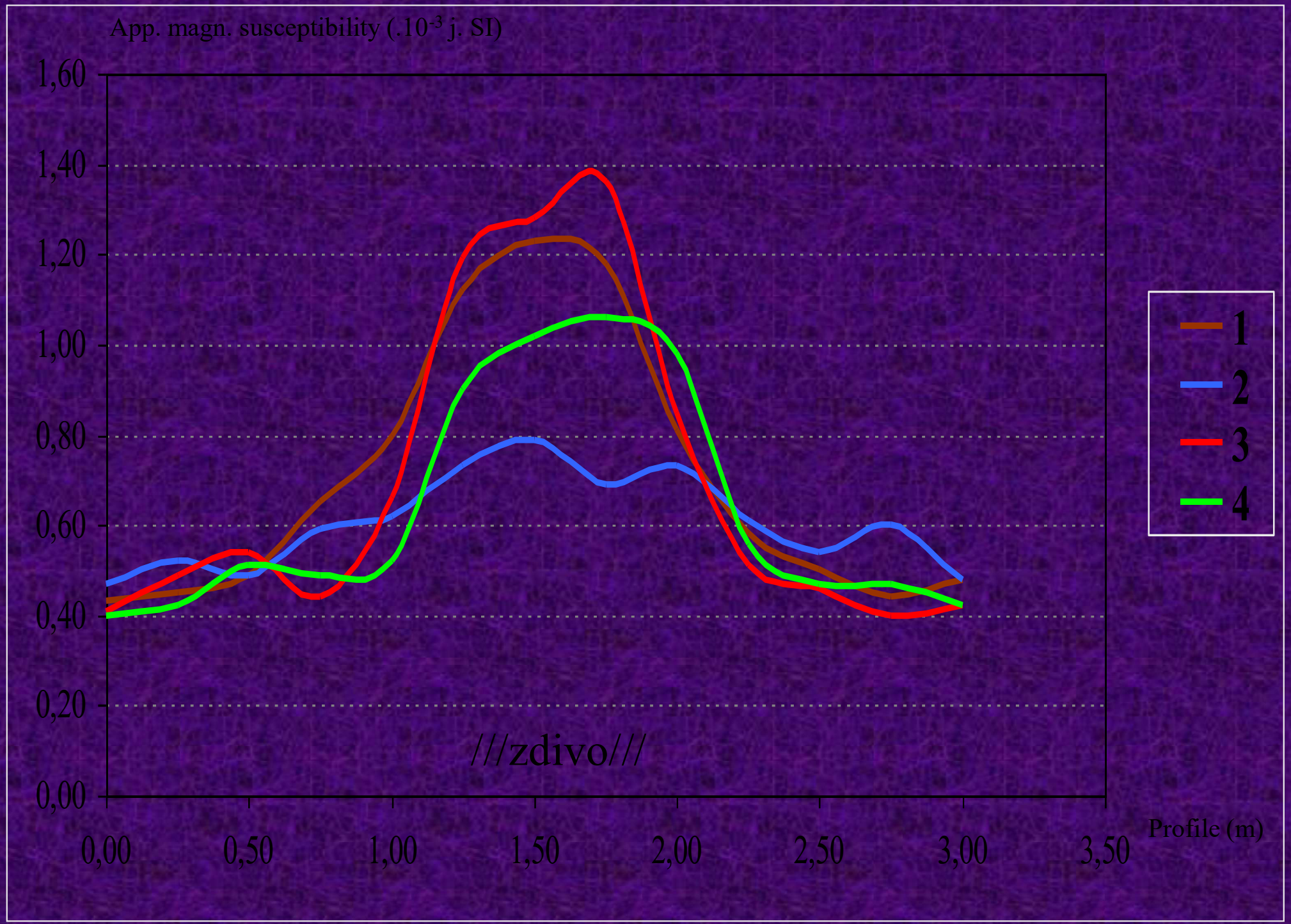
J. Abusír

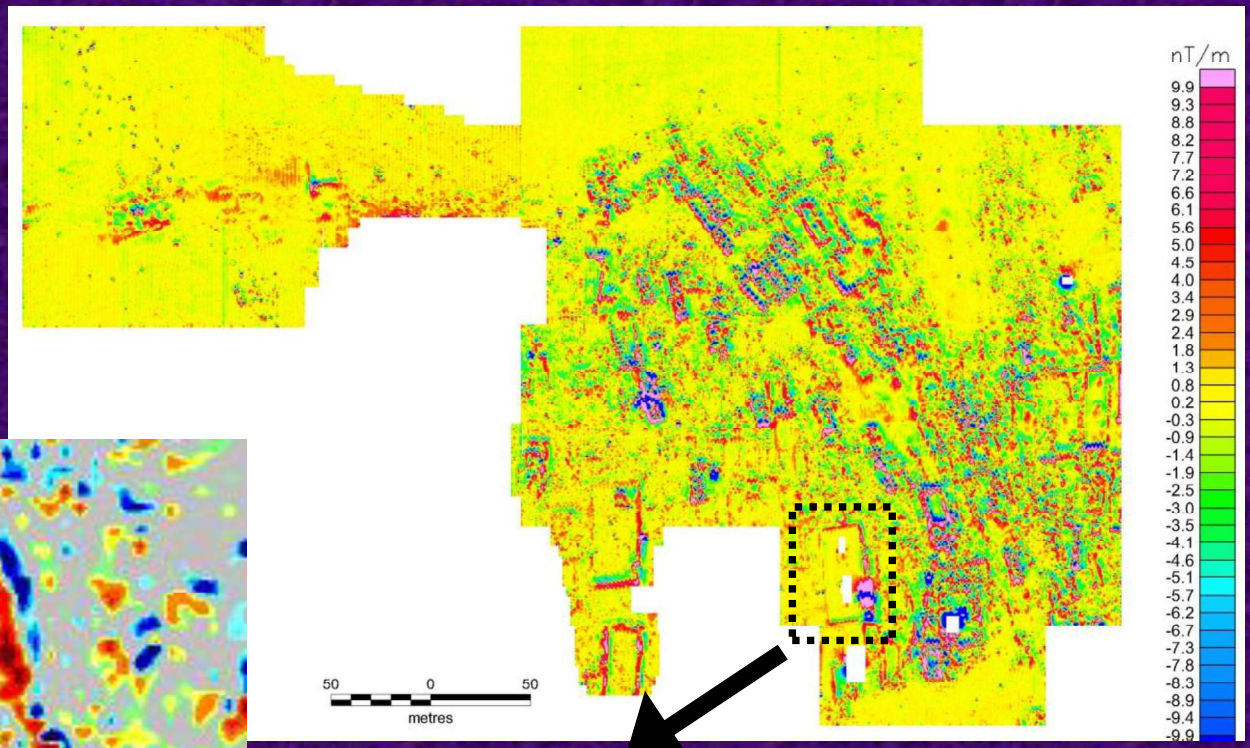


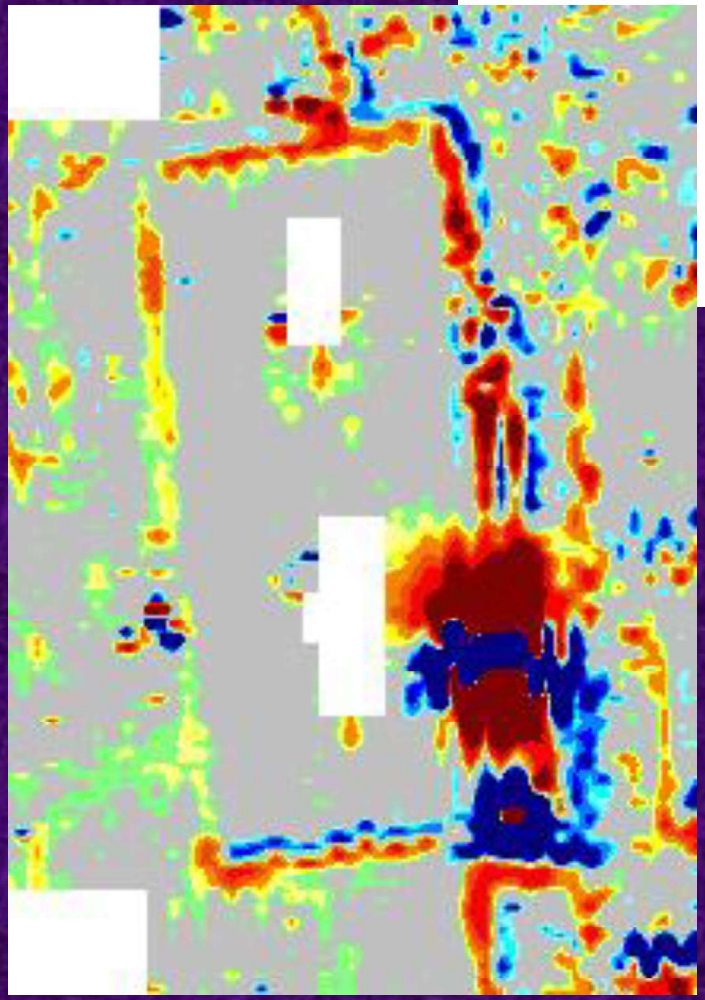


plocha: cca 2 ha

J. Abusír

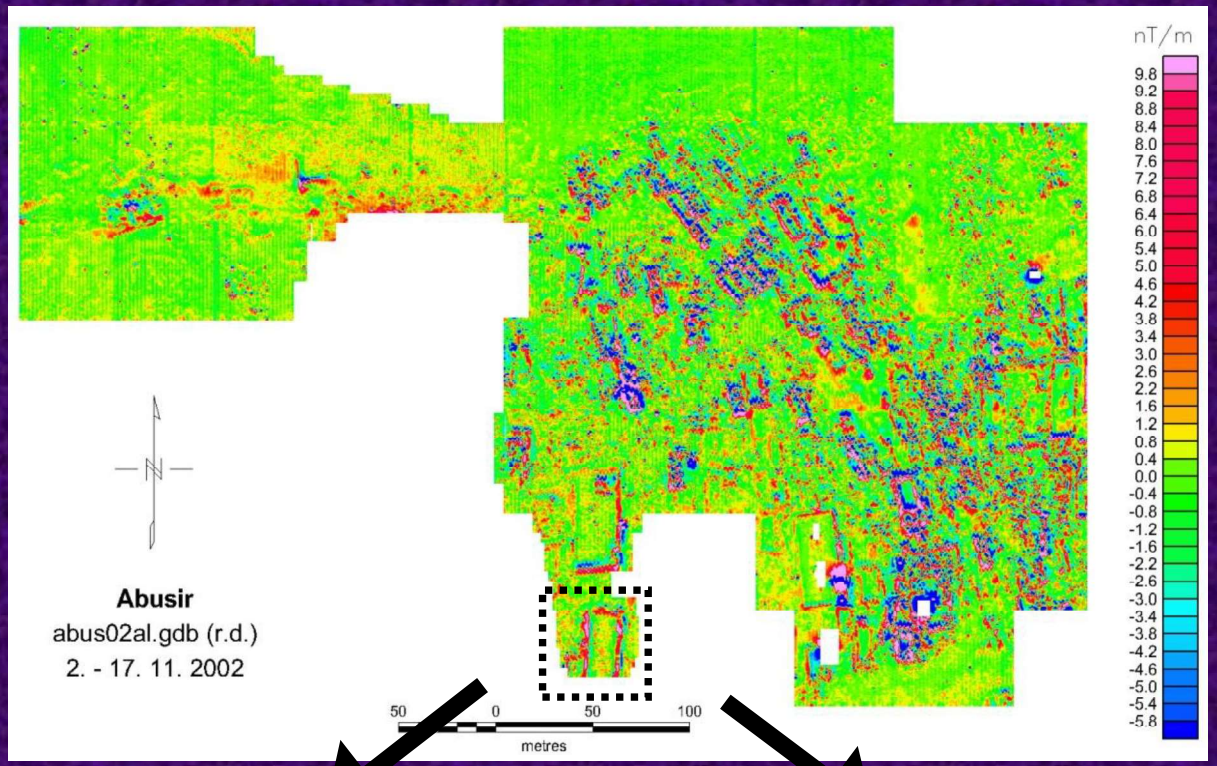

App. magn. susceptibility (.10-3 j. SI)
1,60
1,40
1,20
1,00
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0,60
0,40
0,20
0,00
///zdivo///
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1,00
1,50
2,00
2,50
3,00
3,50
Profile (m)
1
2
3
4

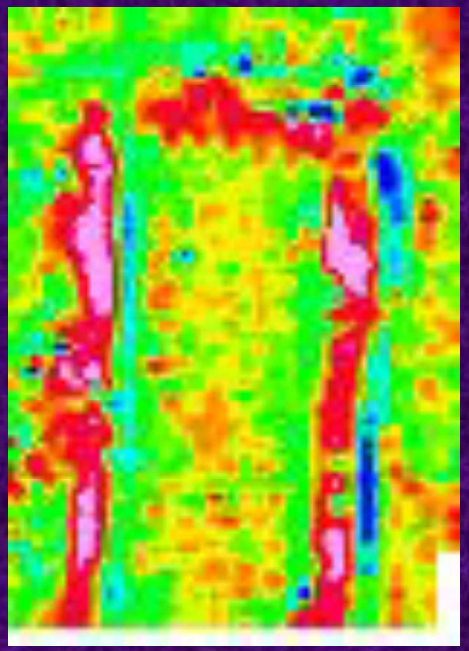

nT/m
9.9
9.3
8.8
8.2
7.7
7.2
6.6
6.1
5.6
5.0
4.5
4.0
3.4
2.9
2.4
1.8
1.3
0.8
0.2
-0.3
-0.9
-1.4
-1.9
-2.5
-3.0
-3.5
-4.1
-4.6
-5.1
-5.7
-6.2
-6.7
-7.3
-7.8
-8.3
-8.9
-9.4
-9.9
50
0
50
metres

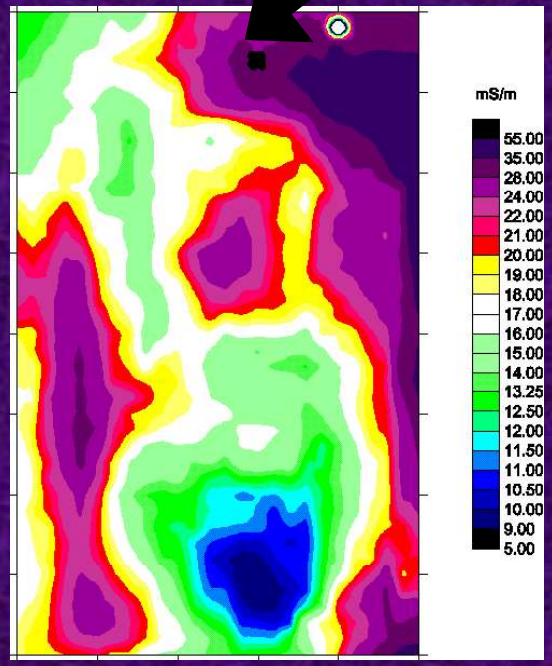




J. Abusír



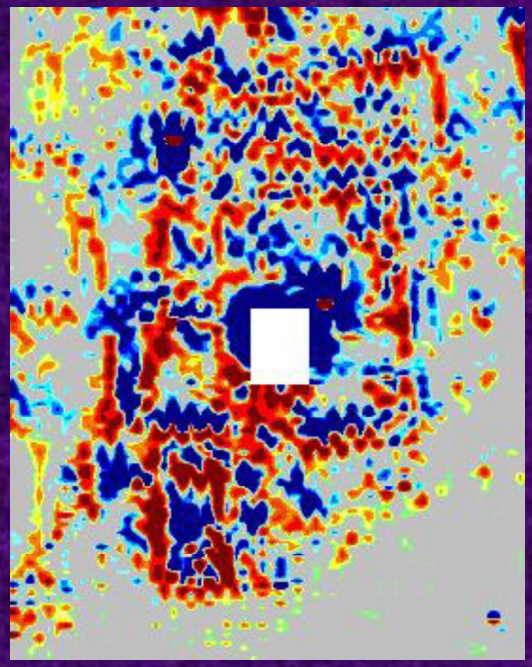


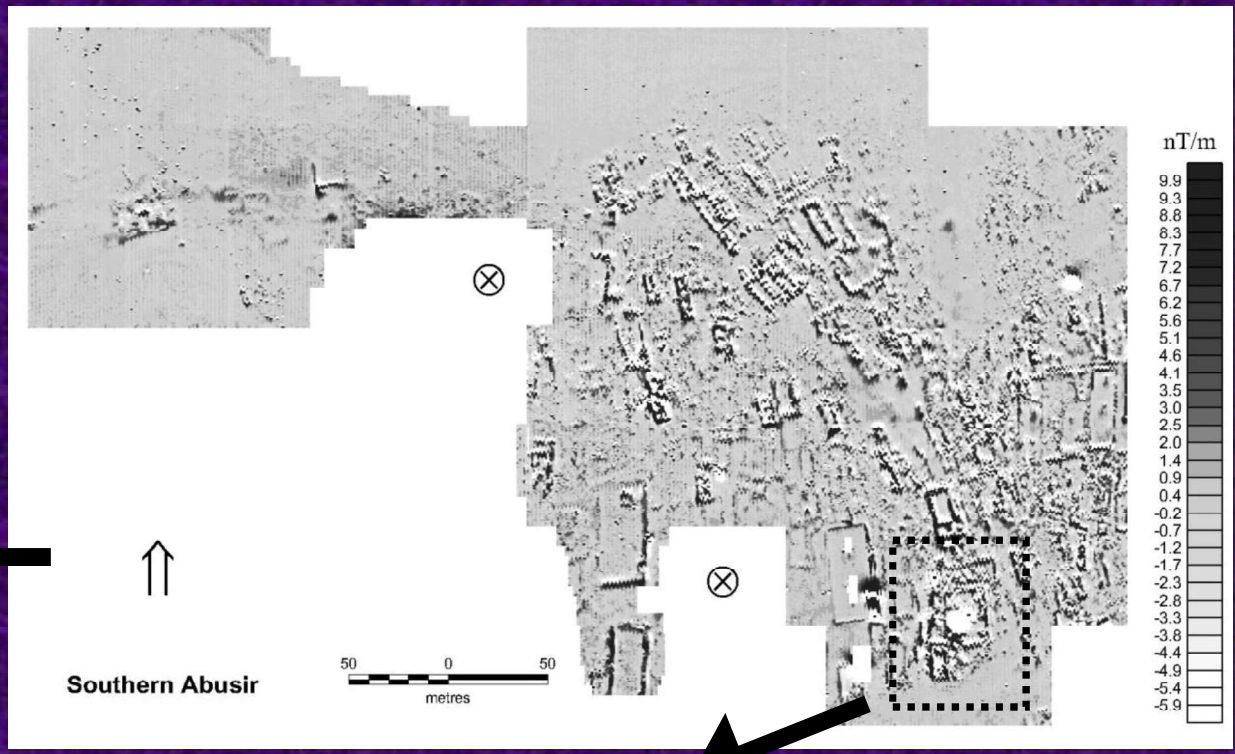




Plocha: cca 50x30 m

J. Abusír

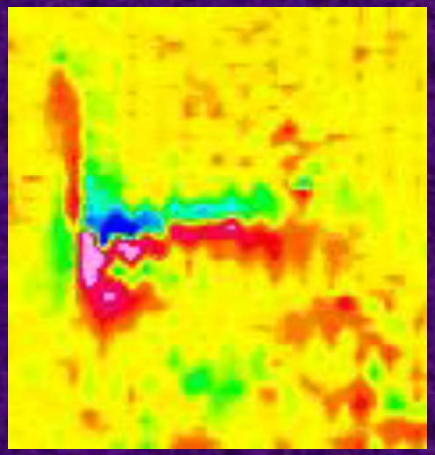


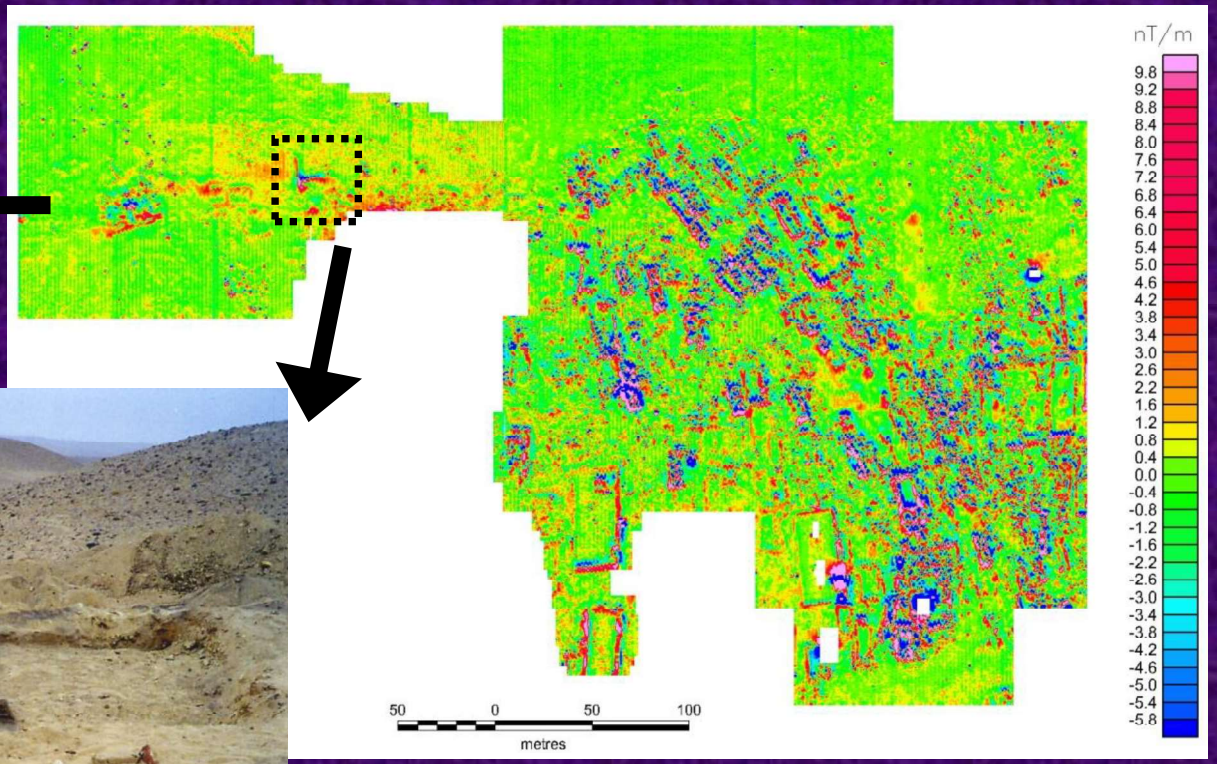

nT/m
9.9
9.3
8.8
8.3
7.7
7.2
6.7
6.2
5.6
5.1
4.6
4.1
3.5
3.0
2.5
2.0
1.4
0.9
0.4
-0.2
-0.7
-1.2
-1.7
-2.3
-2.8
-3.3
-3.8
-4.4
-4.9
-5.4
-5.9
Southern Abusir
50
0
50
metres





J. Abusír




nT/m
9.8
9.2
8.8
8.4
8.0
7.6
7.2
6.8
6.4
6.0
5.4
5.0
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-0.4
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-3.0
-3.4
-3.8
-4.2
-4.6
-5.0
-5.4
-5.8
50
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50
100
metres

