



Česká geologická služba
Czech Geological Survey



Geological Documentation





Geological documentation is a **record of data** needed to compilation of geological map/report

Archive documentation

Field documentation

Exploration/mining documentation

Laboratory documentation





Why field documentation?

Geological mapping is the process of making observations of geological phenomena in the field and recording them.

The information recorded must be factual, based on objective examination and made with an open mind.

Documentation is a base for compilation of the geological map and serves for checking of the map.





Field documentation

Documentation in a topographic map

Field notebook

GPS documentation

Photo-documentation





Documentation in a topographic map

Traversing is a basic method of geological mapping.

Traversing is made by walking a more or less predetermined route from one point to another, plotting the geology on the way.

The rocks are marked to topographic map by colours or agreed symbols and are completed by position of reference point, tectonic symbols and supplementing informations.

Alternatively, traverse could be saved as a track in GPS or using applications in SmartPhones





Geological field maps are records of factual observations made in the field.

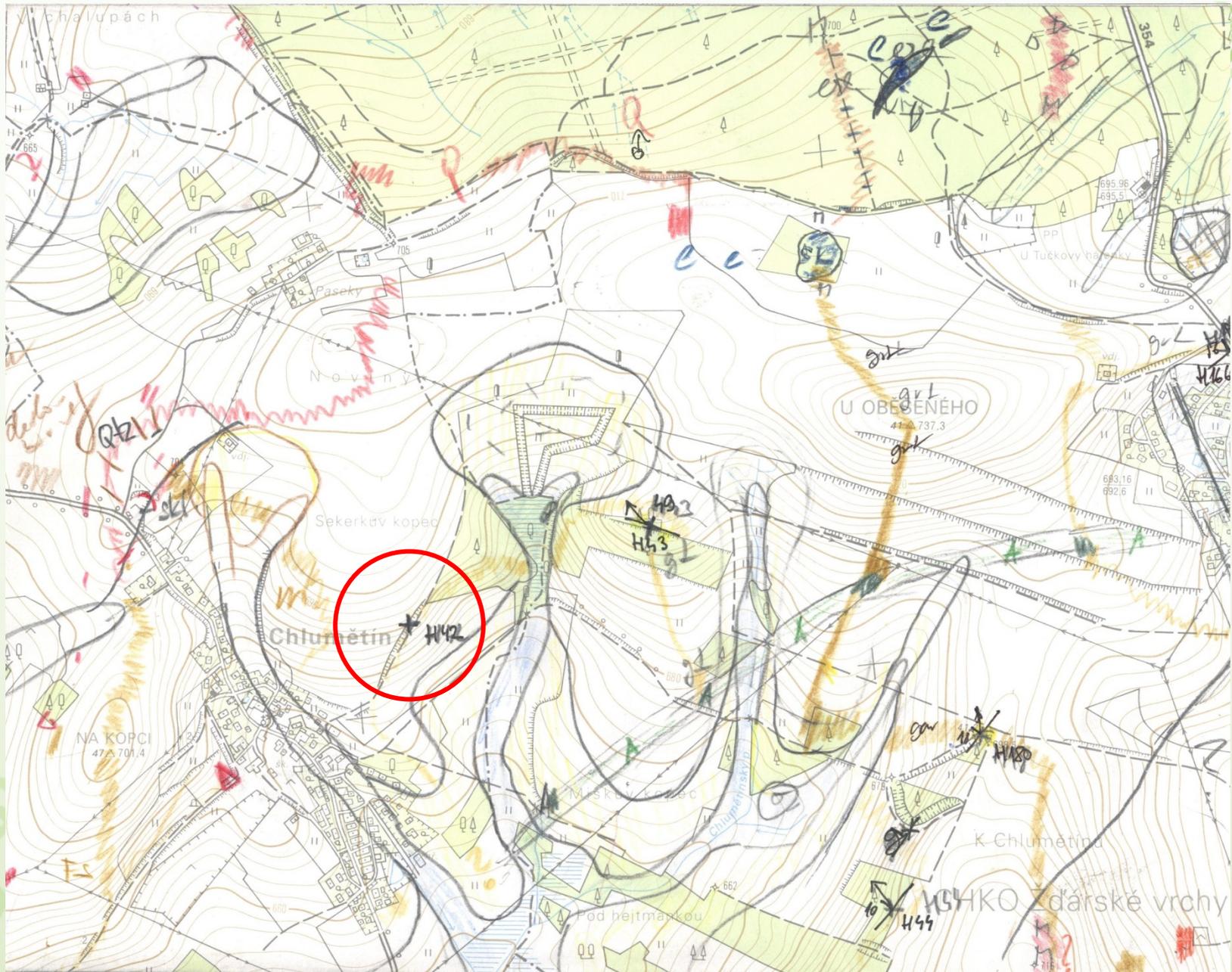
They are not interpretative maps!

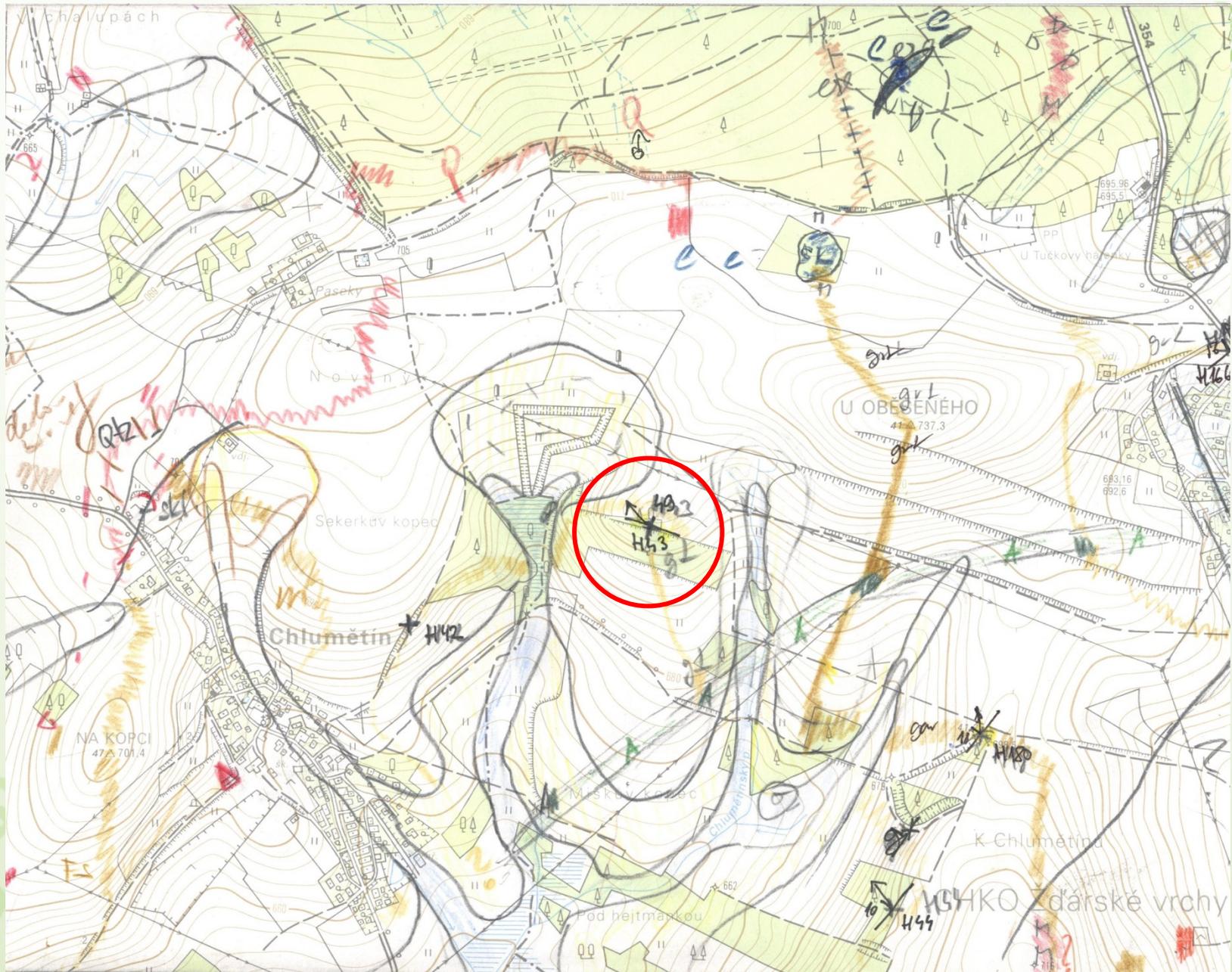


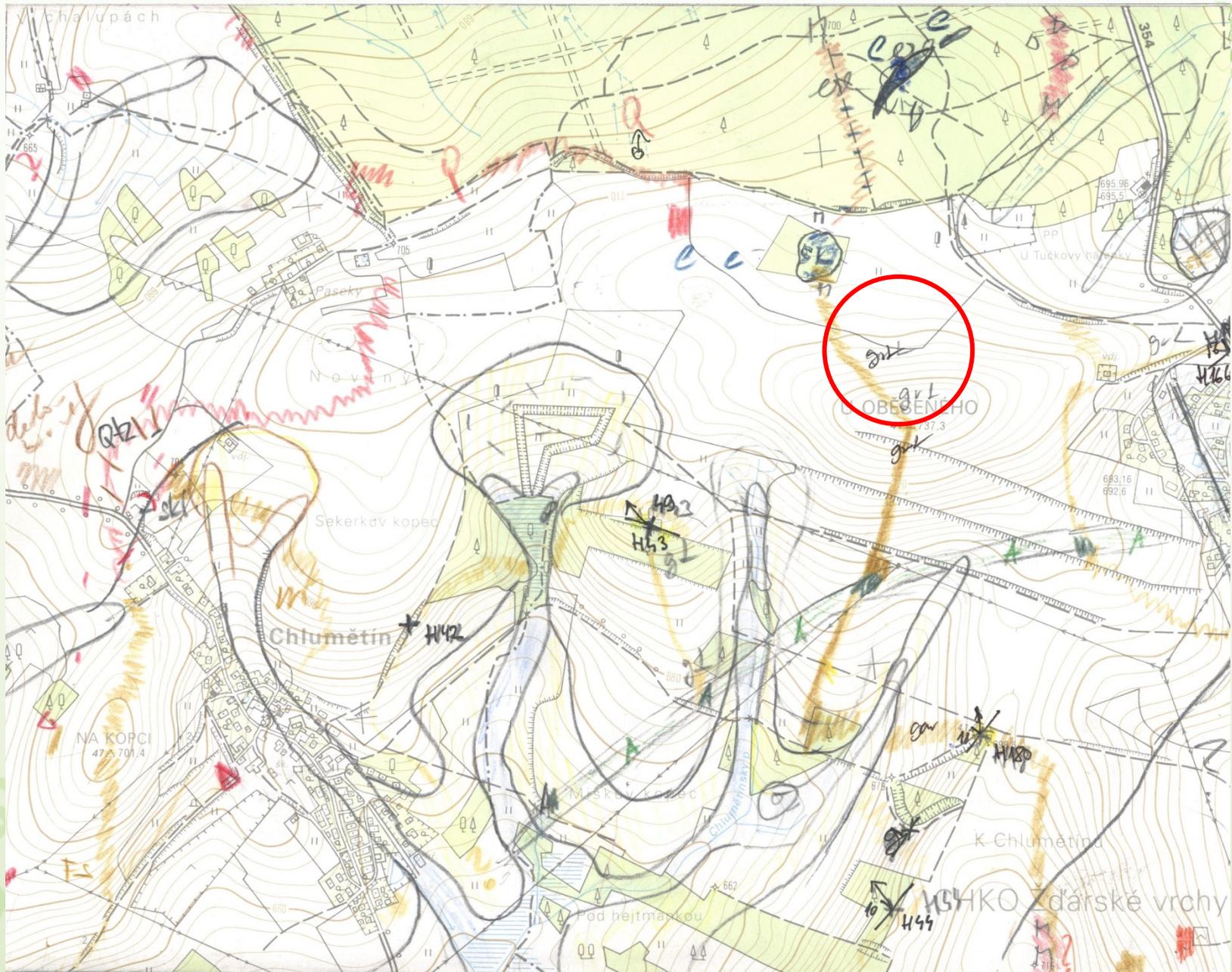


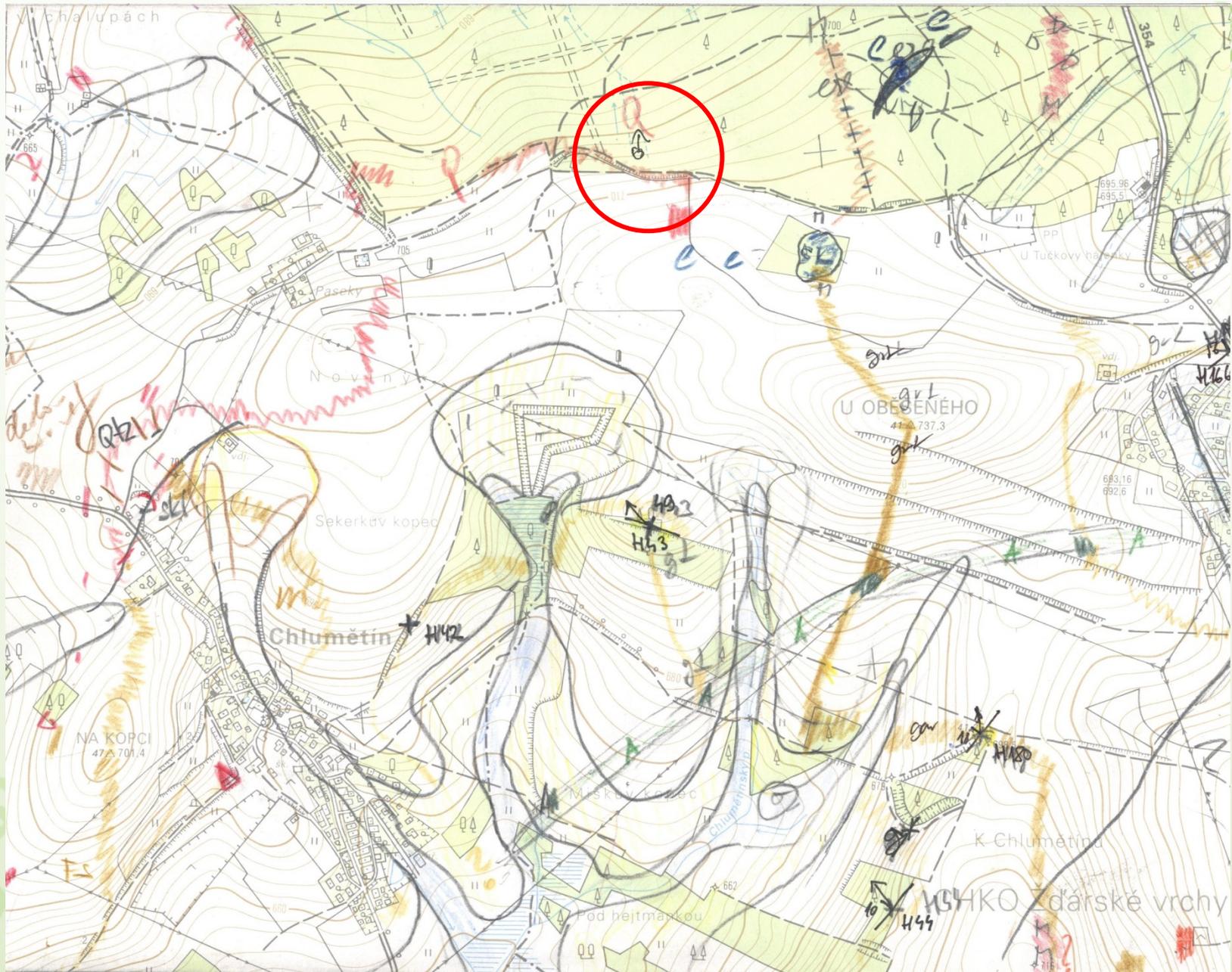
Hand made pencil remarks in field map







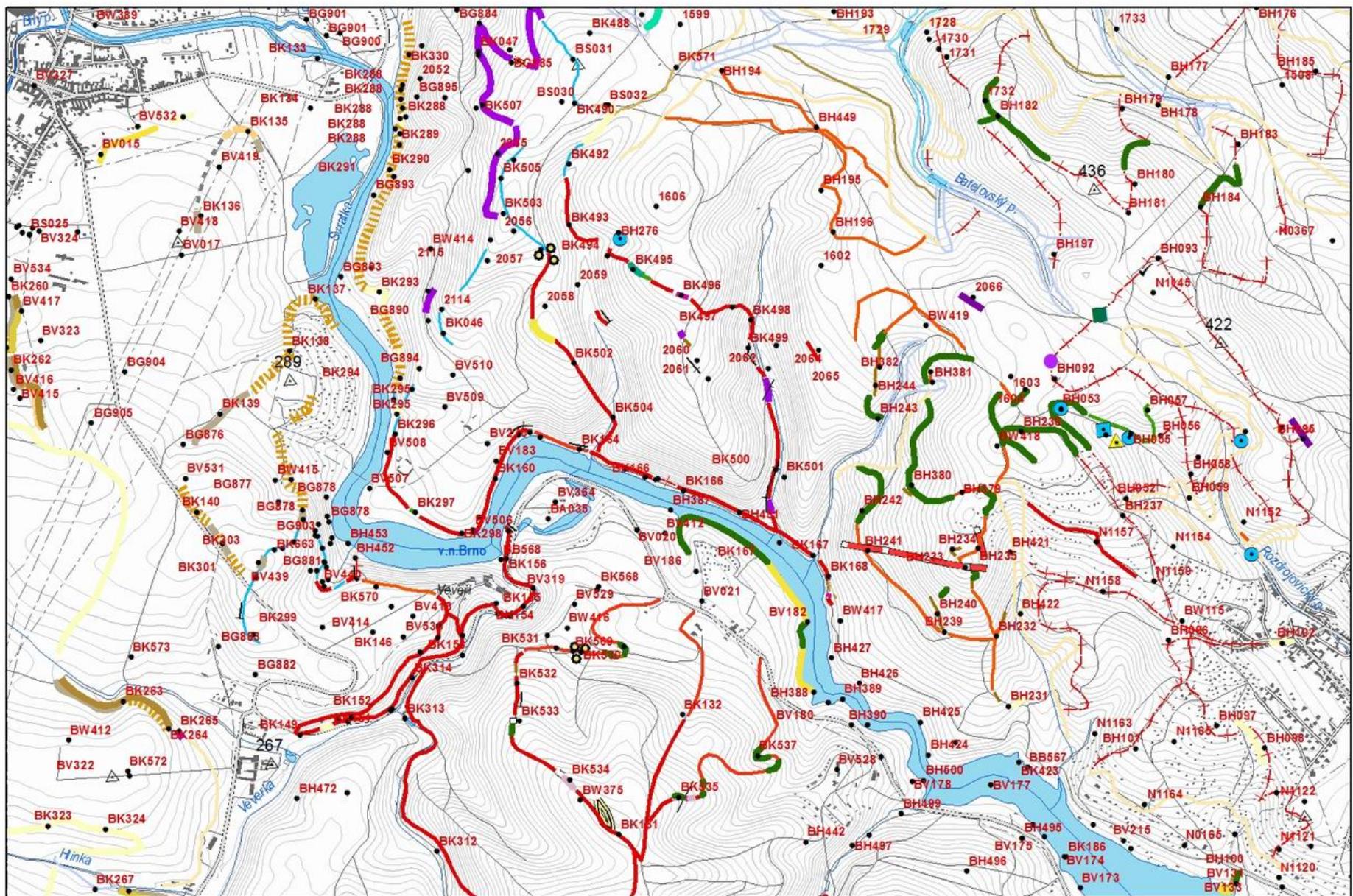


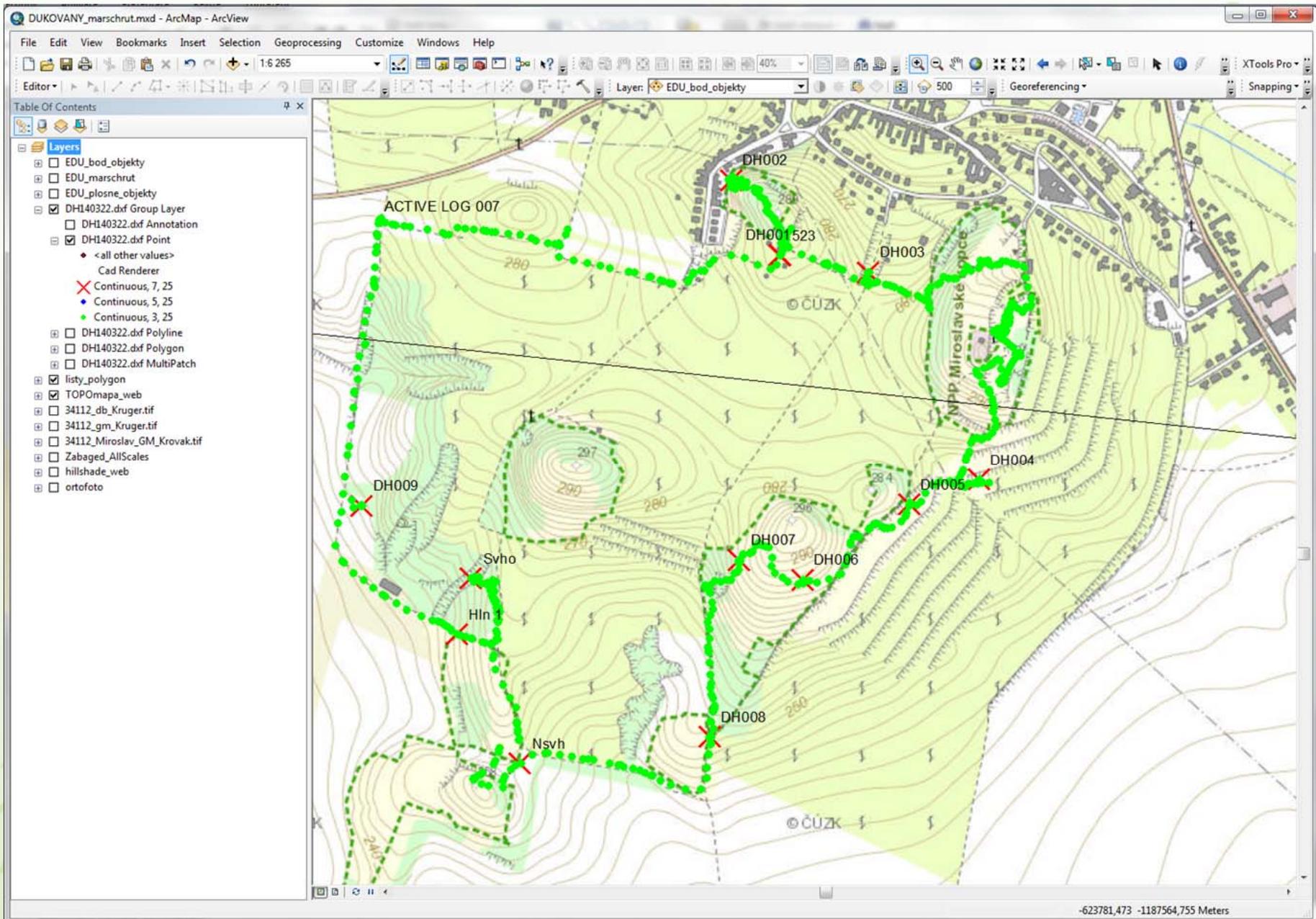




Remarks done by GPS or mobile GIS device







DUKOVANY_marschrut.mxd - ArcMap - ArcView

File Edit View Bookmarks Insert Selection Geoprocessing Customize Windows Help

Editor 1:10 226 40% XTools Pro Snapping

Table Of Contents

Layers

- GIS.DB_LOKALIZACE
- EDU_bod_objekty
- EDU_marschrut
- EDU_plosne_objekty
- DH140322.dxf Group Layer
 - DH140322.dxf Annotation
 - DH140322.dxf Point
 - < all other values >
 - Cad Renderer
 - Continuous, 7, 25
 - Continuous, 5, 25
 - Continuous, 3, 25
 - DH140322.dxf Polyline
 - DH140322.dxf Polygon
 - DH140322.dxf MultiPatch
- listy_polygon
- TOPomapa_web
- 34112_db_Kruger.tif
- 34112_gm_Kruger.tif
- 34112_Miroslav_GM_Krovak.tif
- Zabaged_AllScales
- hillshade_web
- ortofoto

Create Features

EDU_bod_objekty

- blok
- mylonit
- skladka
- valouny
- EDU_bod_objekty
- pramen
- slunak
- štěrkopisek
- katakazit
- Q blok
- studna

EDU_marschrut

- nova
- amfibolit
- aplit
- bazalt
- erlan
- fluvial
- fylit grf
- fylit src
- granodiorit
- granodiorit bt
- granulit
- hornina
- M anatektit
- M leuko
- M oftalmit
- M stromatit
- marmor
- paranula dvojsl
- pegmatit
- piskovec cerveny
- prachovec cerveny
- Q zla
- serpentinit
- slepenc bal
- slepenc mirosl
- slepenc rkt
- splachy
- sterky
- svahoviny hk
- svahoviny psc
- zlom

EDU_plosne_objekty

- antropogen
- EDU_plosne_objekty

Construction Tools

Select a template.



How to get GPS data to ArcGIS?

MapSource

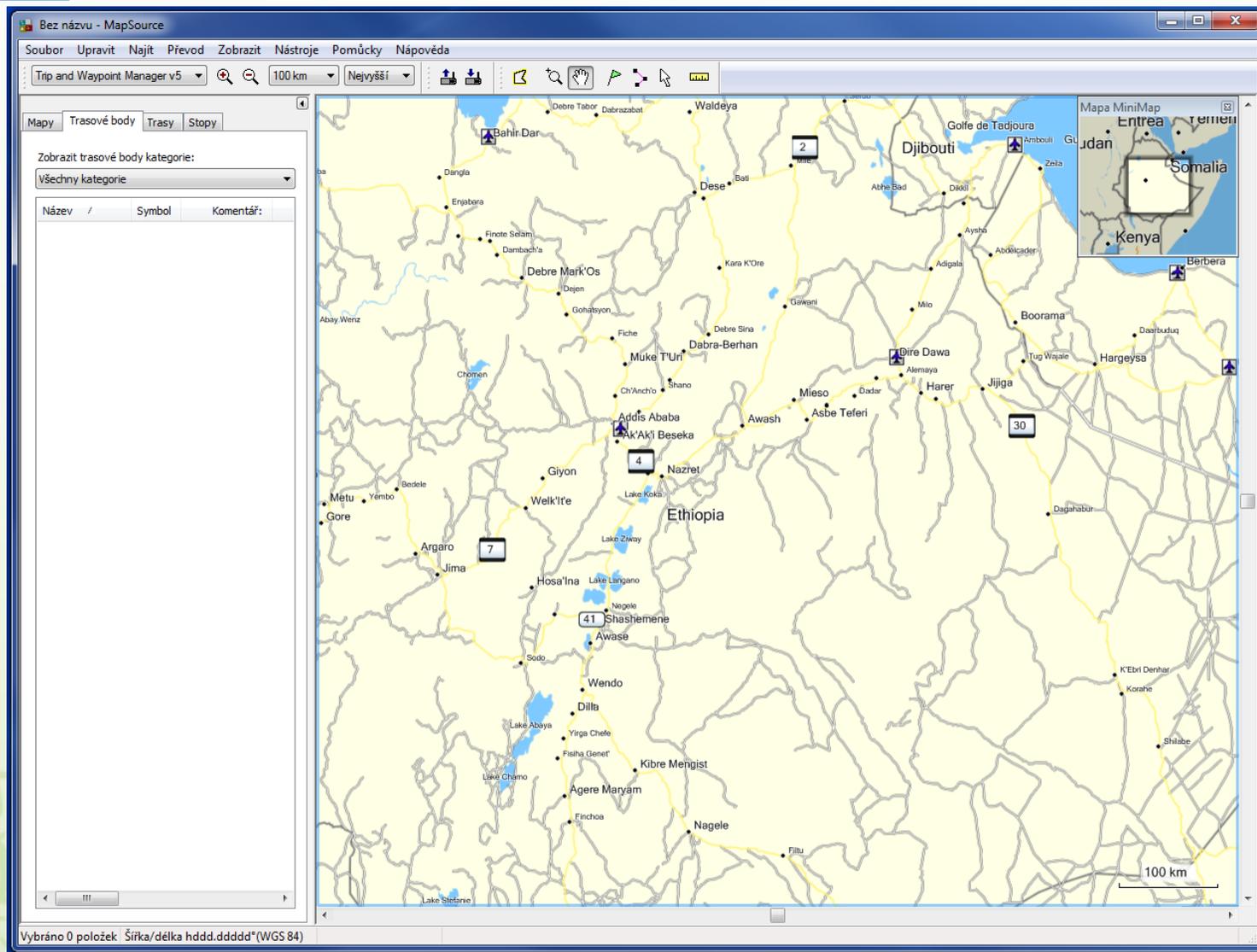
BaseCamp

QGIS





Garmin MapSource



Save as DXF

The screenshot shows the MapSource software interface. The main window displays a topographic map with a yellow dashed survey route and several blue circular markers labeled DH001 through DH009. A dialog box titled 'Prizpůsobení exportu DXF' (DXF Export Customization) is open in the foreground, showing various settings for the DXF export.

Prizpůsobení exportu DXF

Dosah dokumentu
 Používat desetinné stupně Používat souřadnice UTM
 N49.00214 E16.31654
 N48.93138 E16.24718

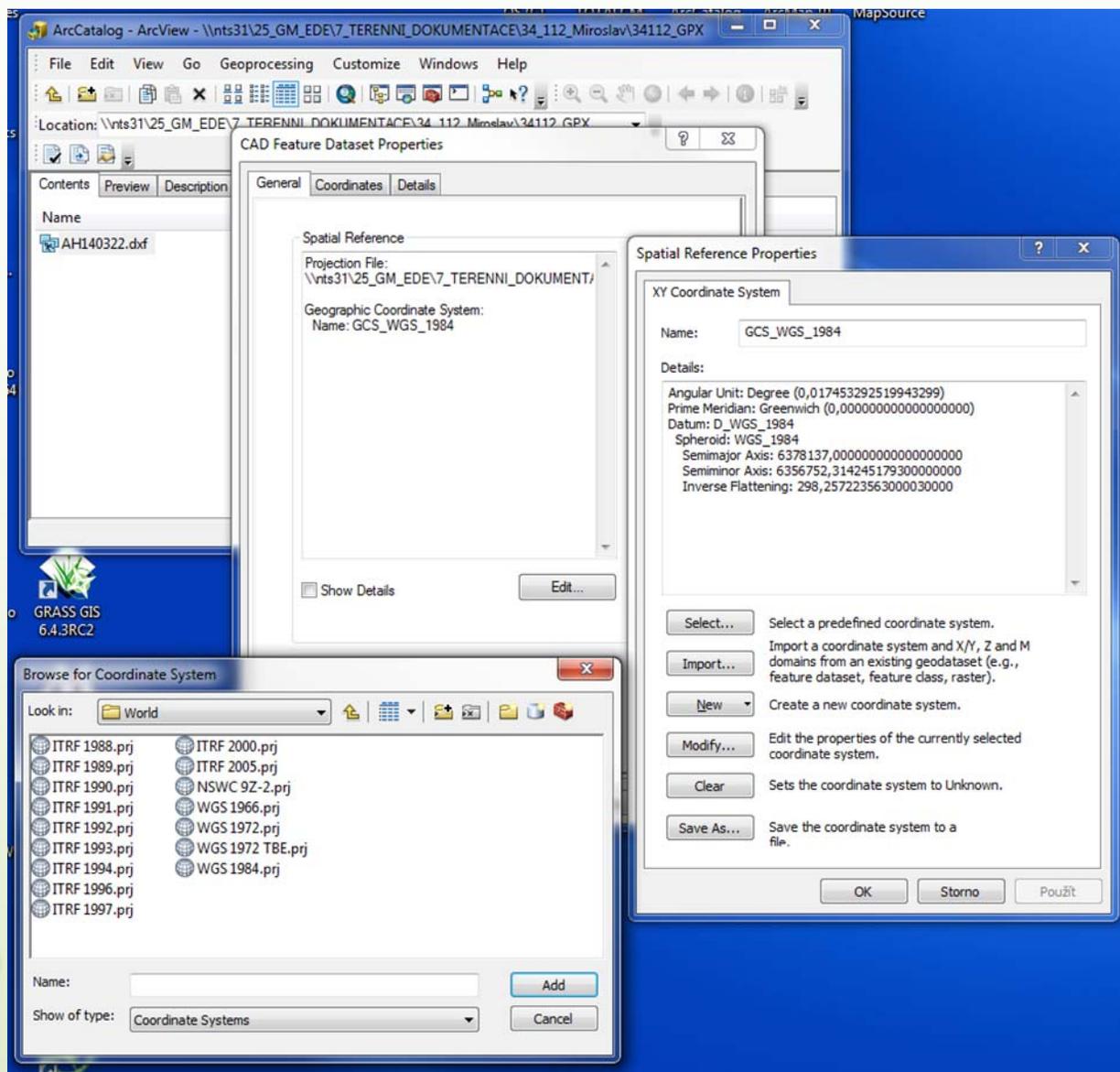
Faktory měřítka
 Následující faktory měřítka se použijí na data určená k vytváření bodů, linií a kruhů DXF:
 Měřítka XY (stupně na jednotky kreslení) 1
 Soustředné kružnice (km na jednotky kreslení) 1
 Výška textu (jednotky vykreslování) 1
 Rozsah nadmořské výšky: 115 m
 Zahrnout informace o výšce
 Měřítka Z (m na jednotky kreslení) 1

Možnosti zobrazení
 V obrázcích DXF zobrazovat západní délku jako kladné hodnoty
 Vytvářet symboly obsahující podrobnosti o trasovém bodu, trase a stopě

OK Storno

Šířka/délka hddd*mm.mmm (WGS 84)

Setting a coordinate system in ArcCatalog



Add to ArcGIS project by „yellow +“

The screenshot shows the ArcMap interface with the following elements:

- Toolbar:** A red circle highlights the 'Add Data' button (represented by a yellow plus sign).
- Table of Contents:** A red arrow points to the 'DHI140322.dxf Point' layer, which is checked and has a red 'X' symbol next to it. Other layers include 'EDU_bod_objekty', 'EDU_marschrut', 'EDU_plosne_objekty', and various DHI140322.dxf files.
- Map View:** Displays a topographic map with contour lines. A green dashed line traces a path across the terrain. Several red 'X' markers are placed at specific points, labeled with codes: DH002, DH001, 523, DH003, DH004, DH005, DH006, DH007, DH008, DH009, Svho, Hln, and Nsvh. The map also shows buildings, roads, and the 'Npp Miroslavské pce' (Nuclear Power Plant Miroslavské pce).
- Status Bar:** Shows coordinates: -623781,473 -1187564,755 Meters.



Garmin BaseCamp



Garmin BaseCamp

Soubor Upravit Zařízení Vyhledat Zobrazit Nástroje Mapy Plánovač trasy Dobrodružství BirdsEye Přihlásit se Nápvěda

Vyhledat

Knihovna

- Moje sbírka
 - Nová složka
 - Nová složka (1)
 - 140322
 - Nový seznam
 - Data neuvedená v seznamu

- Dobrodružství Garmin
- Co je to?

Nový seznam

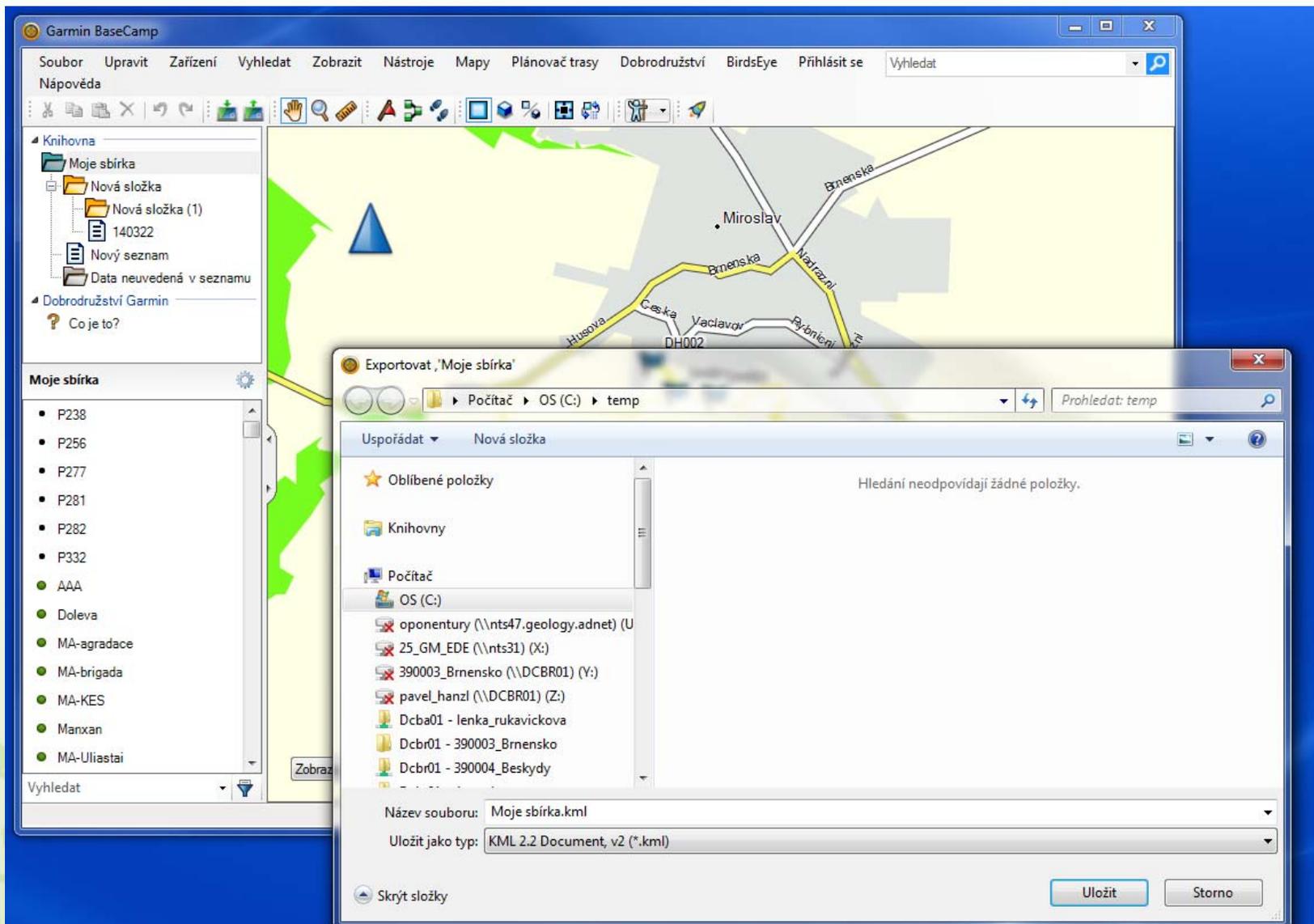
- P238
- P256
- P277
- P281
- P282
- P332
- AAA
- Doleva
- MA-agradace
- MA-brigada
- MA-KES
- Marxan
- MA-Uliastai
- Munxxairxan
- Sainshand
- Sainshand ZEEG
- 002
- 003
- 004

Vyhledat

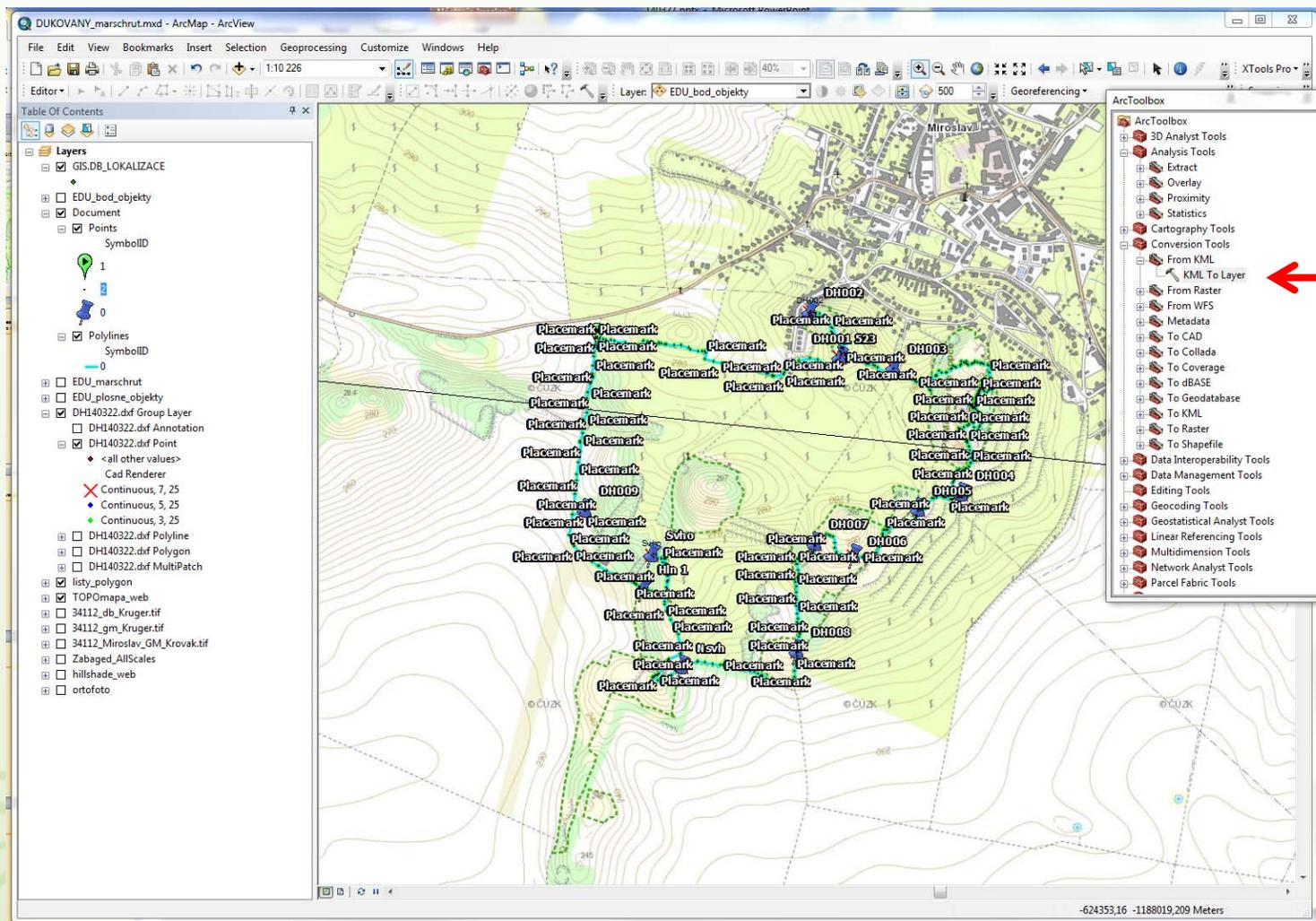
Celková mapa

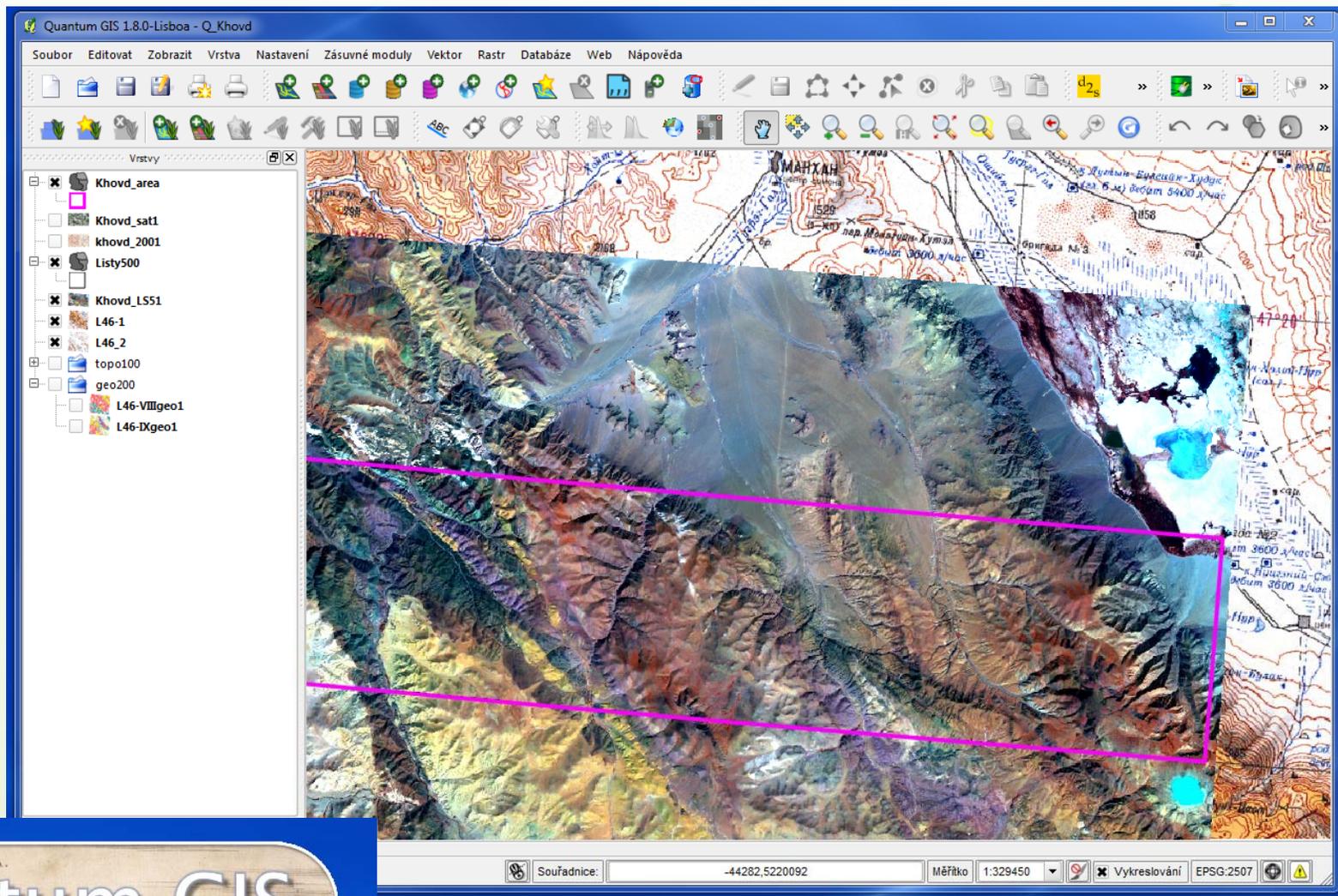
10 km

Export to KML



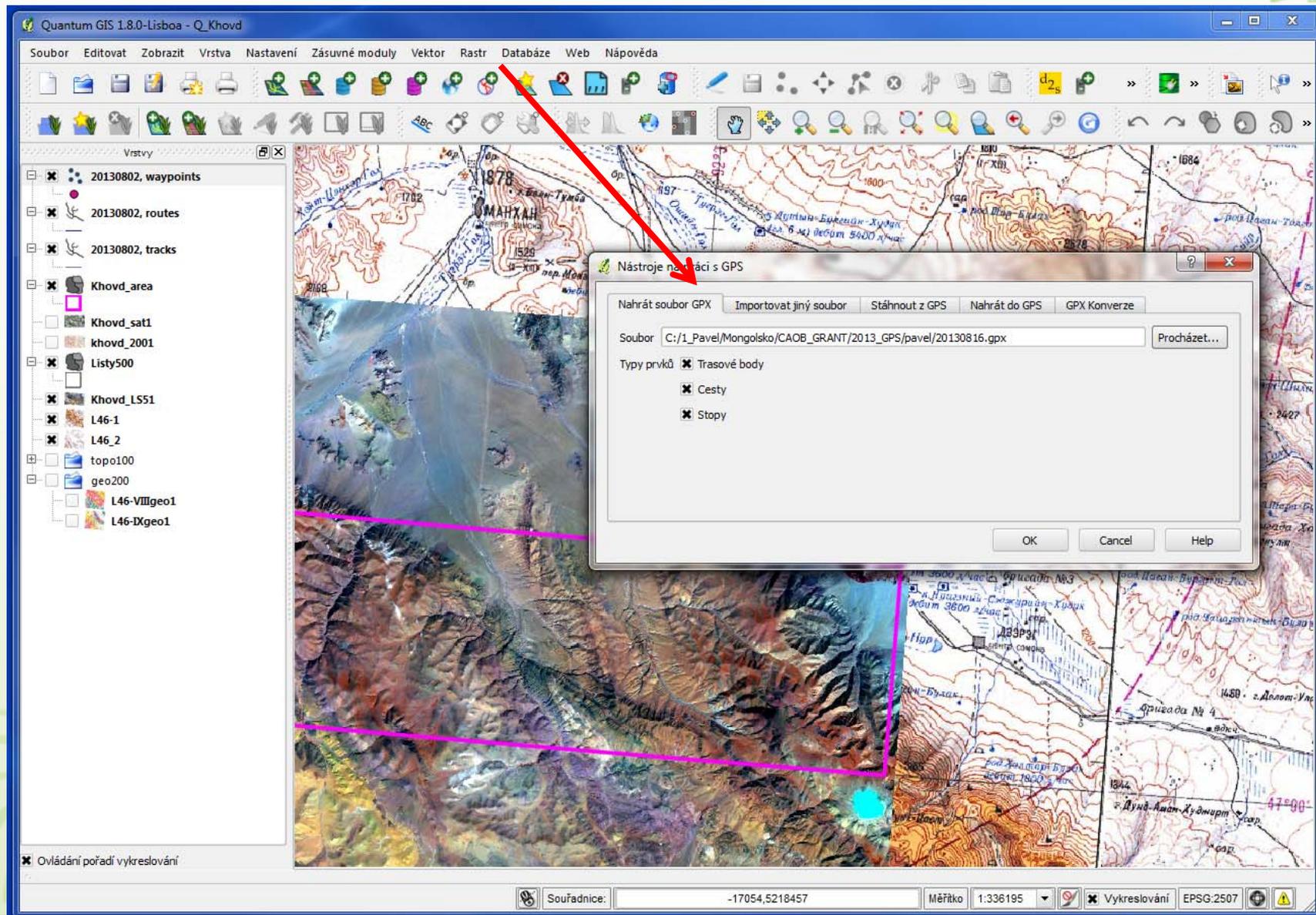
Open KML file in ArcGIS using ArcTool Box





Using QGIS free software

Open GPX file could be directly saved as SHP





Exercise with GPS data



Description of reference point

Field notebook

Saturday 17 April 2003 Light drizzle.
Aim is to examine the east side of Caswell Bay

Sheet No.		Point No.		N		E		Z	
Type of outcrop:				Localisation:				Author:	
Type of sample:								Date:	
Valley:			Stream gradient:			Grain size:			
Fm.	Rock	Grain size	Composition	Alteration	Tectonics				
Ore minerals:				Fossils:					
Other observations:									

(108) near the
and the
(567129)
S
scale, post=1.5m
F3
younging (x-bedding)
405
brown coarse dolomite horizon
(ins ch level) These reverse
ray up (X-ek (12/04) right fold not > near to fault

Fig. 1.2-1. Documentation card for the record of the field description of reference point.



Steps (parts) of description of exposure

Localisation

Rocks

Tectonics

Samples

Supplementary remarks

**Illustration
Photograph**





Localisation

Point in the field map with number

GPS coordinates (in proper format and coordinate system)

Verbal description

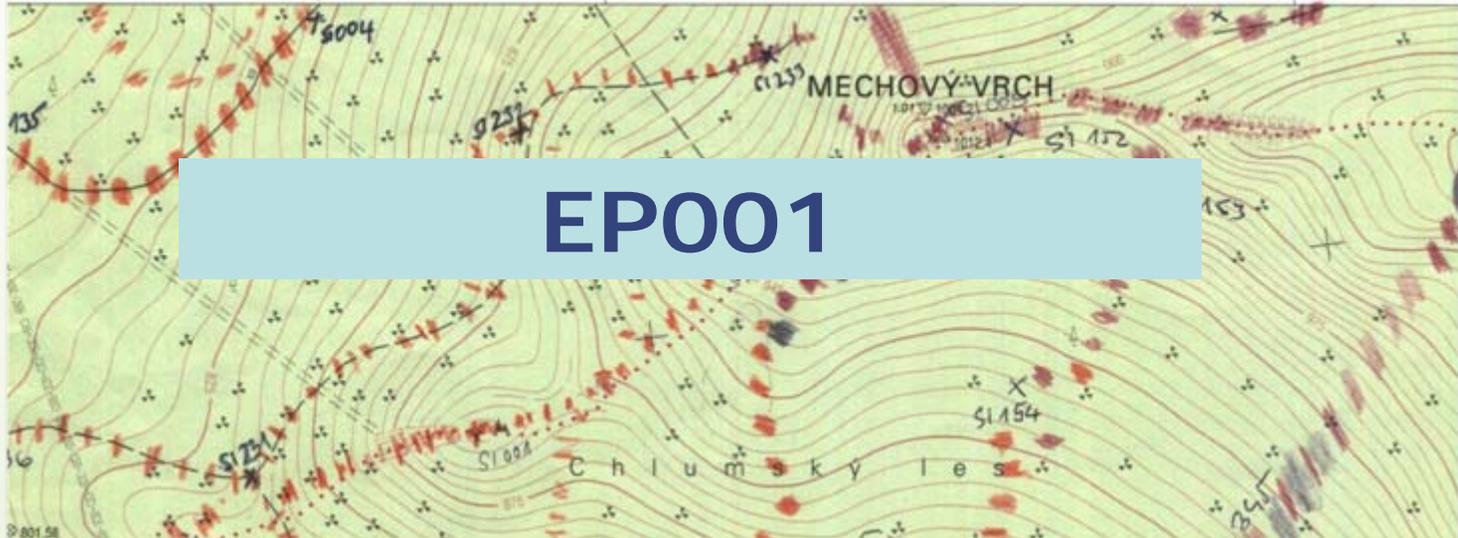
Type of outcrop

Name of geologist

Date



Label of reference point must be unique in the map sheet or in the mapping area.

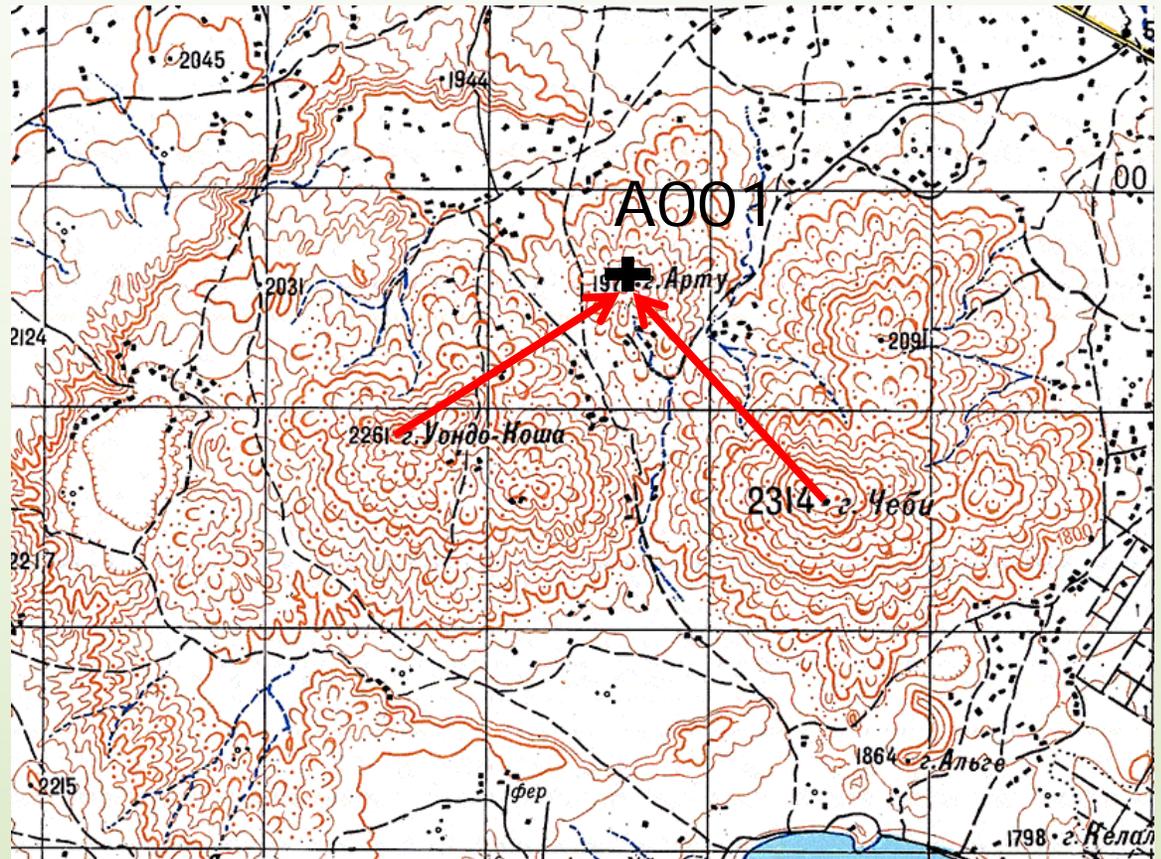


RP No is expressed as combination of letters and numbers, which indicates name of geologist and/or map sheet and ordinal number of point.

GPS coordinates - WGS84 dd.ddddd, Adindan
UTM 37 N

Verbal description – distance from two points on
topographic base

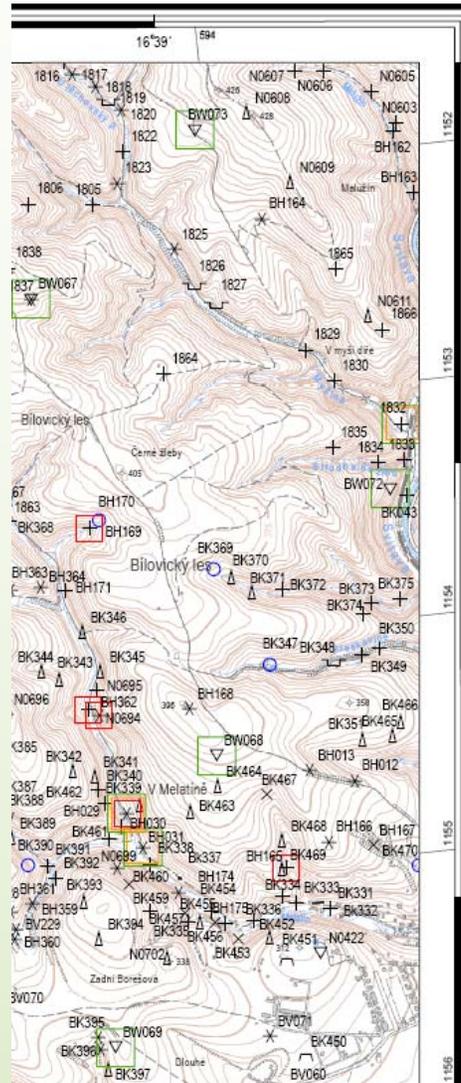
2300 NE from spot
height 2314 m Tschebi,
1950 m from spot hight
2261 Yondo-Nosha



Type and size of the outcrop

- Rock
- Block
- Cut of road
- Quarry
- Sand pit
- Borehole
- Bank of river
- ...

24-324 Brno-sever



Dokumentace vlastní a převzatá

- | | | |
|----|-------|-------------------------|
| 1 | + | skalni výchoz |
| 2 | BV345 | defilé |
| 3 | × | výchoz |
| 4 | △ | bloky, suť, úlomky |
| 5 | ○ | pramen |
| 6 | ■ | studna |
| 7 | * | odkryv |
| 8 | ⊕ | sonda kopaná (šachtice) |
| 9 | ⊗ | sonda zarážená |
| 10 | ▮ | rýna kopaná |
| 11 | ⊙ | vrt |
| 12 | ∩ | halda |
| 13 | ∪ | hniště |
| 14 | ┌ | lom |
| 15 | ∇ | pinky |
| 16 | ∩ | pískovna (štěrkovna) |
| 17 | ▽ | jiný objekt |

Laboratorní zpracování

- | | | |
|----|---|-------------------------|
| 18 | □ | výbrus |
| 19 | □ | těžké minerály |
| 20 | □ | paleontologická analýza |

Chemické analýzy:

- | | | |
|----|---|-------------------|
| 21 | □ | gamaspektrometrie |
| 22 | □ | analýza z hornin |





Rock(s)

Field name – descriptive, will be specified according to thin sections

Colour – subjective

Grain size – massive, fine, medium, coarse-grained

Texture – various for sedimentary, magmatic and metamorphic rocks

Mineral composition – additional qualifiers

Alteration

Mineralisation





Tectonics

Plane elements – bedding, cleavage, foliation, fault, joint, axial plane, limb...

Linear elements – lineations, flute cast, ripple marks, fold axis, striae...

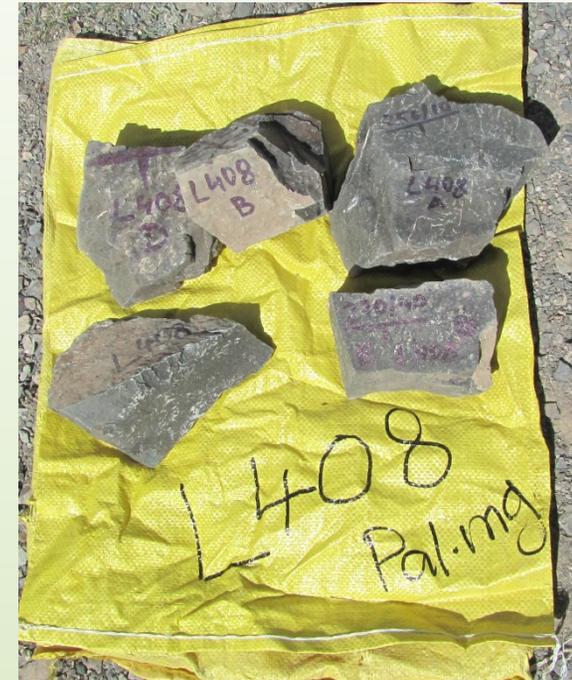


Samples

Petrography, geochemistry, petrophysical properties, mechanical properties...

Each sample should be related to the RP No. and rock and should be well labeled

L408B
Basalt
Paleomag





Supplementary remarks

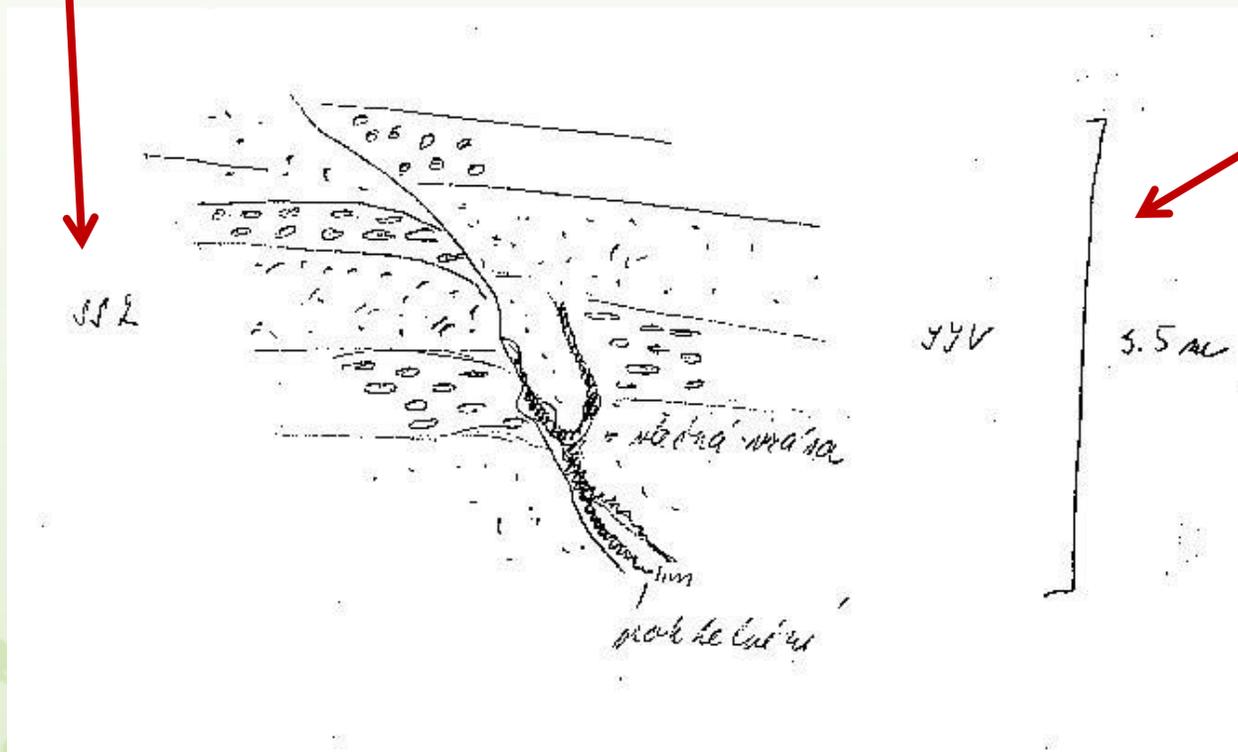
- Relation of rocks
- Relation of tectonic elements
- Presence of water
- Paleontology
- ...

Should be completed by illustration and photodocumentation



What is important to be on illustration?

orientation



scale





Storing of field data

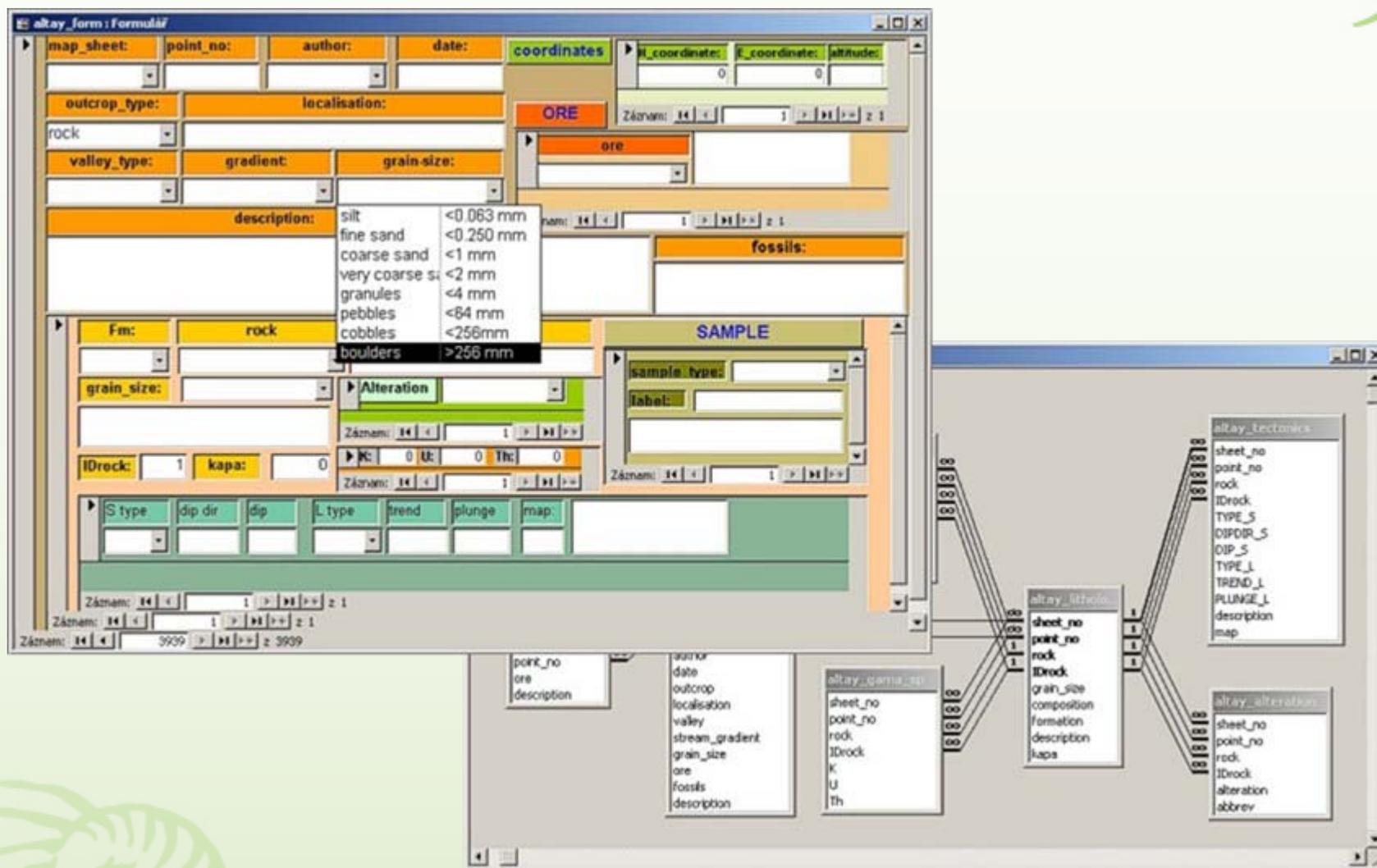
Archive of documentation cards or field notebooks

Scanned coppies of field notebooks

Databases







Desktop version – MS ACCESS

Kód dokumentačního bodu **BH117** Číslo mapového listu (ZM) **24-324** Geologické mapování

Nejbližší geogr. název/polohopis Jinačovice **Autor** Hanžl Pavel

Lokalizace
Výkop na elevaci nad erozní rýhou jv. od obce

Popis
spraše lokálně přesucovaný granodioritovým eluvium, mocnost spraš v erozní rýze min. 5 m.

Typ výchozu výkop (jáma) Zvodnění

Význam Č.význ.lokality (vysvětlivky)

Rozměr [m] 20*5*8 Č. listu mapy 1:10000

Instituce

Poznámka

Číslo úkolu Původní kód u revidované dok.

Dokumentace **vlastní** Datum dokumentace v terénu: 14.03.2010 (tvar DD.MM.RRRR) Datum přibližné (pro přibližné datum uvádějte 1. v měsíci je-li znám měsíc, případně 1.1., je-li znám pouze rok)

Uložit **Kopie** **Odstranit**

1. spraš SXQP - pleistocén, XX - nerozlišeno, Z2 - kvartér akumulčních oblastí Českého masivu

Nová hornina

Přílohy k dokumentaci BH117



popis

x

bh117
14.03.10

Altay project
Online field database

Search: Submit

You are here: Sites :: P430 :: View

Logged in as pavel (Logout) My Profile Change Password

navigation

- Sites
- Units
- Structural types
- Rocks
- Samples
- Structural data
- Photos

Found 1787 of 1787 records in table Sites
New Showing 1 of 1787

Current Record: P430

view edit photos rocks history

P430
Course grained bt orthogneiss alternates with with bt gneiss (to migmatite) containing calc-silicate lenses, S 278/86, L 6/61 b 9/49 AP/5, b 192/10 AP 260/80, S 328/61 L 356/47
Last updated Thursday, October 09, 2014 - 5 days ago

Rocks see all

orthoaneiss	Site starts	P
migmatite	SiteID	1999
	Site Name	P430
	Longitude	94.709106
	Latitude	43.545815
	Description	Course grained bt orthogneiss alternates with with bt gneiss (to migmatite) containing calc-silicate lenses, S 278/86, L 6/61 b 9/49 AP/5, b 192/10 AP 260/80, S 328/61 L 356/47
	Last modification	Thu Oct 9 20:26:34 2014
	Author	pavel

Photos see all

- P430.JPG
- P430a.JPG
- P430b.JPG
- P430c.JPG

Map view

Samples

Neighbouring sites

V417	305 m
Z436	393 m
K421	394 m
V418	605 m
K420	1974 m
V416	1976 m
V411	2302 m
2442	2333 m
V415	2546 m
Z435	2608 m
L420	2617 m
P431	2714 m
P429	2974 m
2441	2989 m

Show in Google Maps

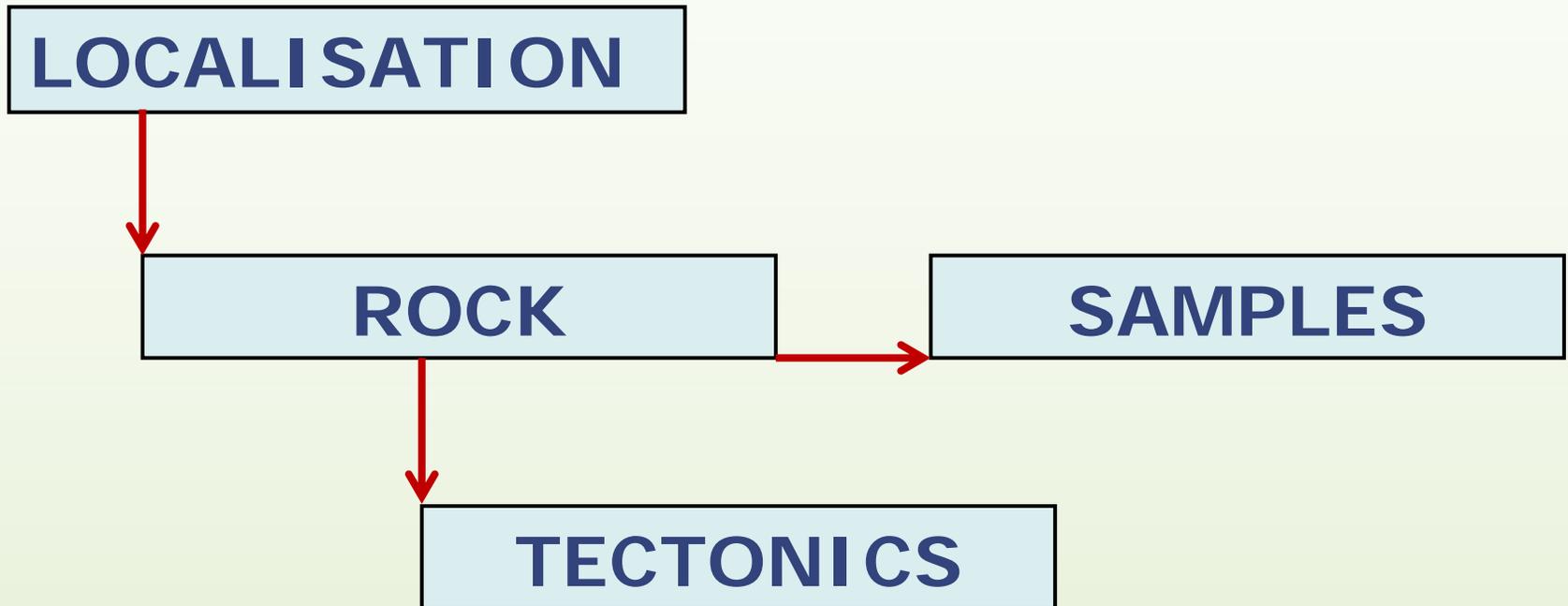
view edit history

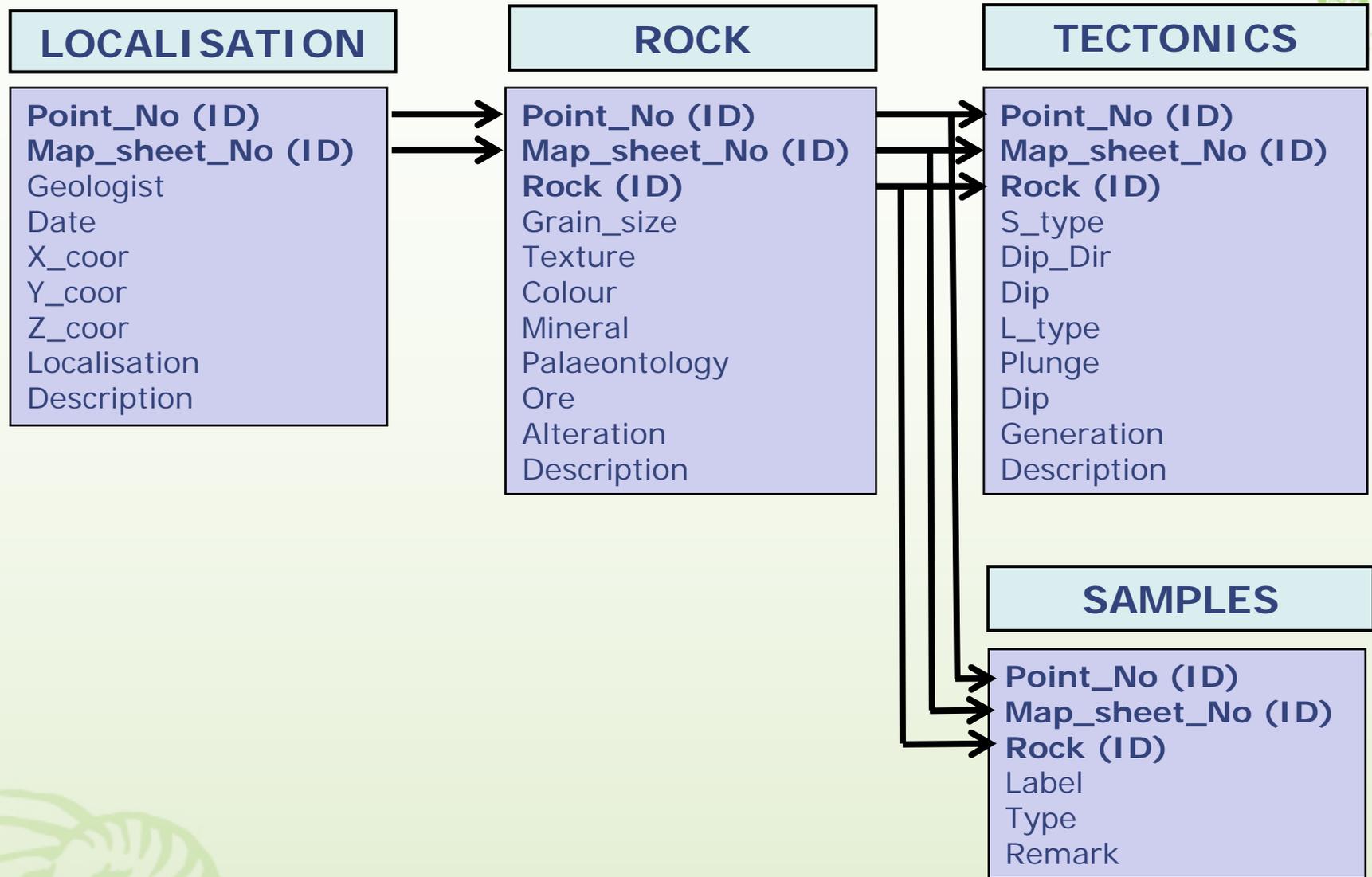
P430.JPG
Last updated Thursday, October 09, 2014 - 5 days ago

Photo

On-line database

Documentation database - structure





altay_form

map_sheet: L-47-100 point_no: 03_11 author: Hanžl date: 22.5.2003

coordinates: N_coordinate: 45,25523 E_coordinate: 98,96068 altitude:

outcrop_type: localisation: ORE

rock: valley_type: gradient: grain-size:

description: quartz dikes

fossils:

Fm: ETG rock: phyllite composition: Alteration

grain_size: phyllite phyllonite porcelanite porphyry porphyroid porphyry proluvial sediments pyroclastics quartz quartz rich gneiss quartz sill quartz-carbonate quartz-diorite quartz-epidote quartzite quartzitic slate quartzite rhyodacite rhyolite rhyolite tuff

IDrock: S type Sm

SAMPLE: sample type: M label:

trond pluge

122 1

samp	sample_type
Pe	petrography
Ch	WR geochemistry
Pa	paleontology
PaM	micropaleontology
A	alluvial sample
S	silt (stream) sample
M	soil metalometry
L	lithochemistry
D	radiometric dating
R	R-max
O	ore petrography
D	Dickinson
*	

abbrev	structure	symbol	code
3D	bedding	33	2
S	foliation	35	4
C	cleavage	38	32
F	fault	58	3
M	mylonitization	80	5
J	joint	63	2
Dy	dyke	82	9
Sg	foliation magmatic	43	34
Sm	foliation metamorphic	35	4
Ap	Axial plane	72	35
*			

File Edit View Bookmarks Insert Selection Geoprocessing Customize Windows Help

1:15 000 Georeferencing 23314_DEstna_orez.jpg Snapping

Table Of Contents

Layers

- 23323_nov_vc_lito
- <all other values>
- HORNINA
- amfibolit
- antropogenní sediment
- aplit
- biotitit
- břidlice
- durbachit
- eklogit
- eluvium
- erlan
- fylonit
- gabro
- granit (žula)
- granitoid
- granitoid bohatý křemenem
- granodiorit
- granulit
- hřina
- jil
- karbonát
- kvarcit
- křemenec
- leptynit
- metadiorit
- metagabro
- metagranit
- metagranitoid
- metatonalit
- migmatit
- mikrodiorit
- mikrogranit
- mineta
- mramor (krystalický vápennec, dolo)
- mylonit
- ornice
- ortorula
- pararula
- pegmatit
- porfyr
- porfyroid
- pyroxenit
- písek
- půda
- půda - podpovrchové horizonty (B)
- půda - povrch (do 3 cm)
- rašelina
- rula
- sapropel (hnilokal)
- sediment neznepevněný (neznámý)
- serpentinit (hadec)

Identify

Identify from: <Top-most layer>

- migmatit
- granulit

Location: -708 401,876 -1 141 206,820 Meters

Field	Value
FID	15
Shape	Point
CBOD	MB038
CMAPA	23323
POPIS	východ za domem
NAZEV	Ždár
X	-1141203,987
Y	-708397,923
TYP	B
LINIE	A
TYP_VYCHOZ	odkryv (umělý)
AUTOR	
PORADI	2
HORNINA	migmatit
PRIVLASTKY	
PRIVL_MIN	biotitický
ALTERACE	
ZRNITOST	středně zrnitý (magmatit,metamorfit)(3,3 - 1,0 mm)
NAZEV_TEXT	
STRATIGRAF	paleozoikum až proterozoikum
LITOSTRATI	nerozlišeno
REGION	moldanubikum Šumavy a jižních Čech
NAZEV_GEN	
OBJECTID	145810780

Identified 2 features



Questions ?

