Data Collection of Geographic Names in the BEV

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- BEV‘s Topographic Basic-Models
- Categories of geographic names and responsibilities
- Analog era („ÖK50 era“)
  - Initial data capturing
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    - Field work
    - Processing
  - Updating
- Digital era („KM50 and DLM era“)
  - Initial data capturing (phase 1)
  - Initial data capturing (phase 2)
  - Updating
- Position of names
- Georeferencing

Data Capturing of Geographic Names – General Workflow

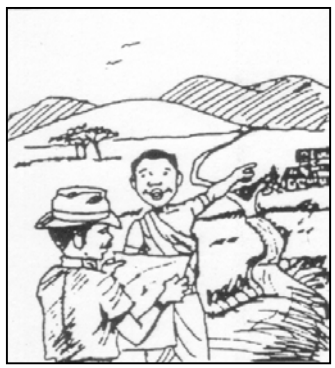
Prefield Peparation

Going to the fields

Initial contacts

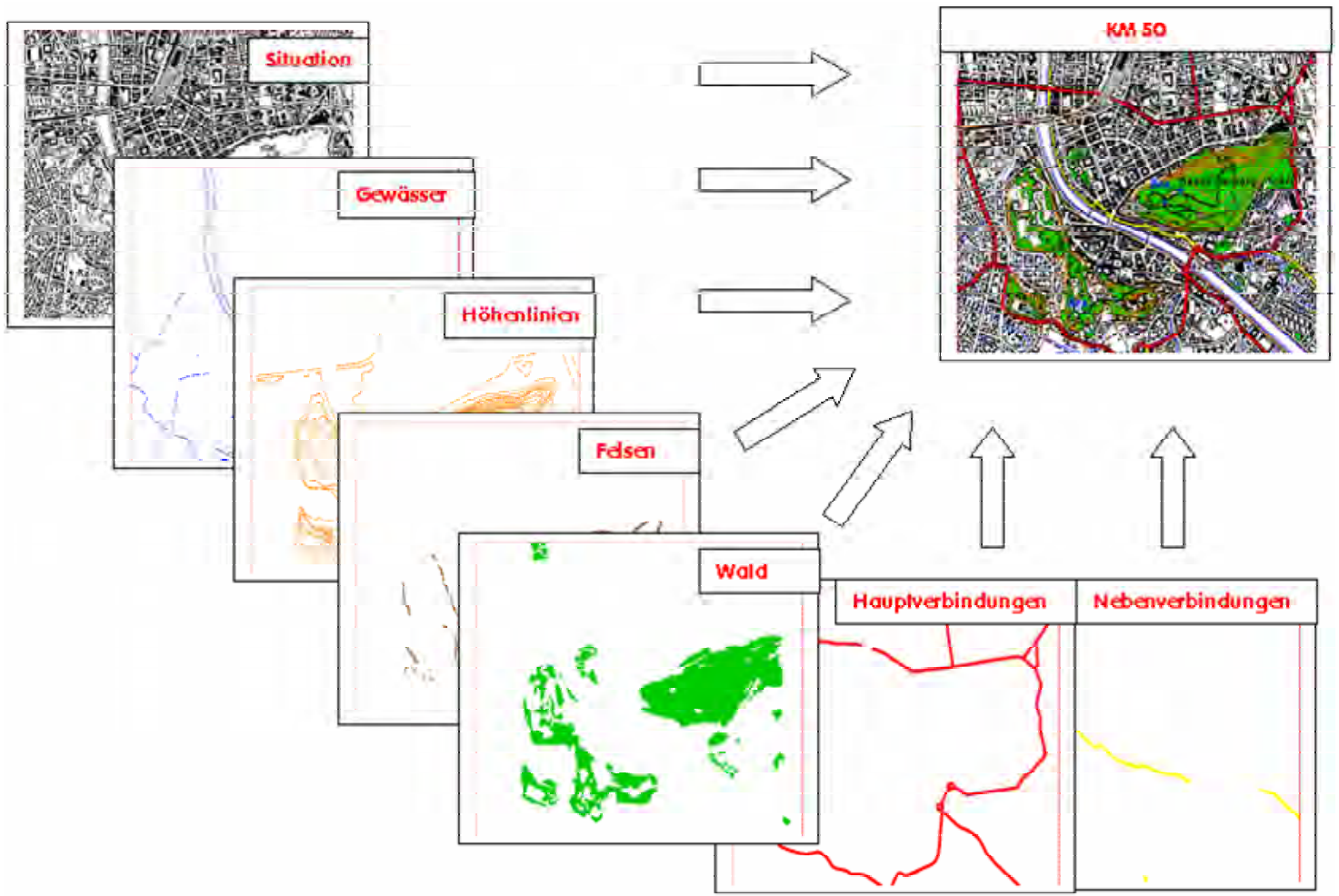
Interviewing at home, school or office

Interviewing in the field

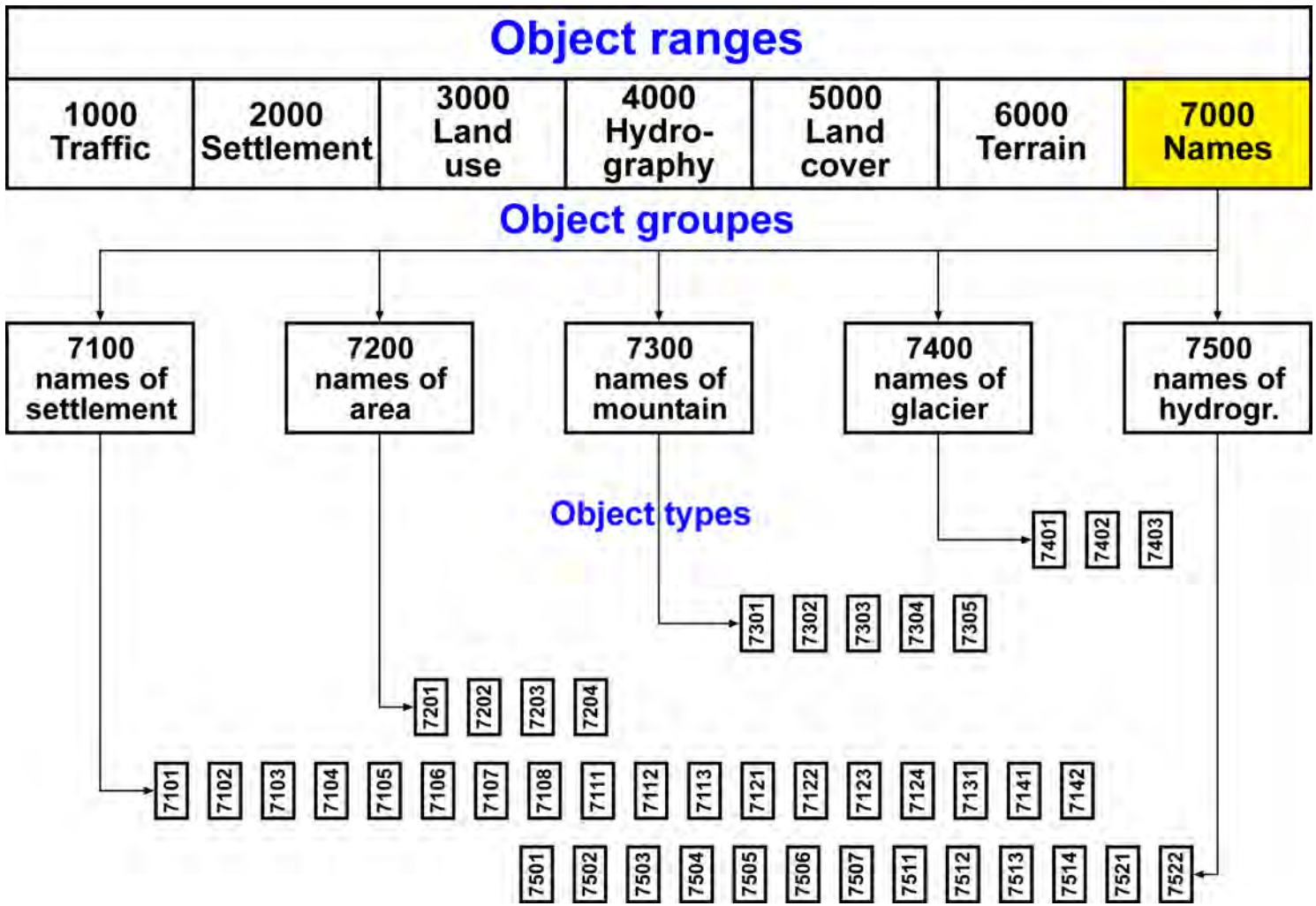


Processing field work results and checking completeness of work

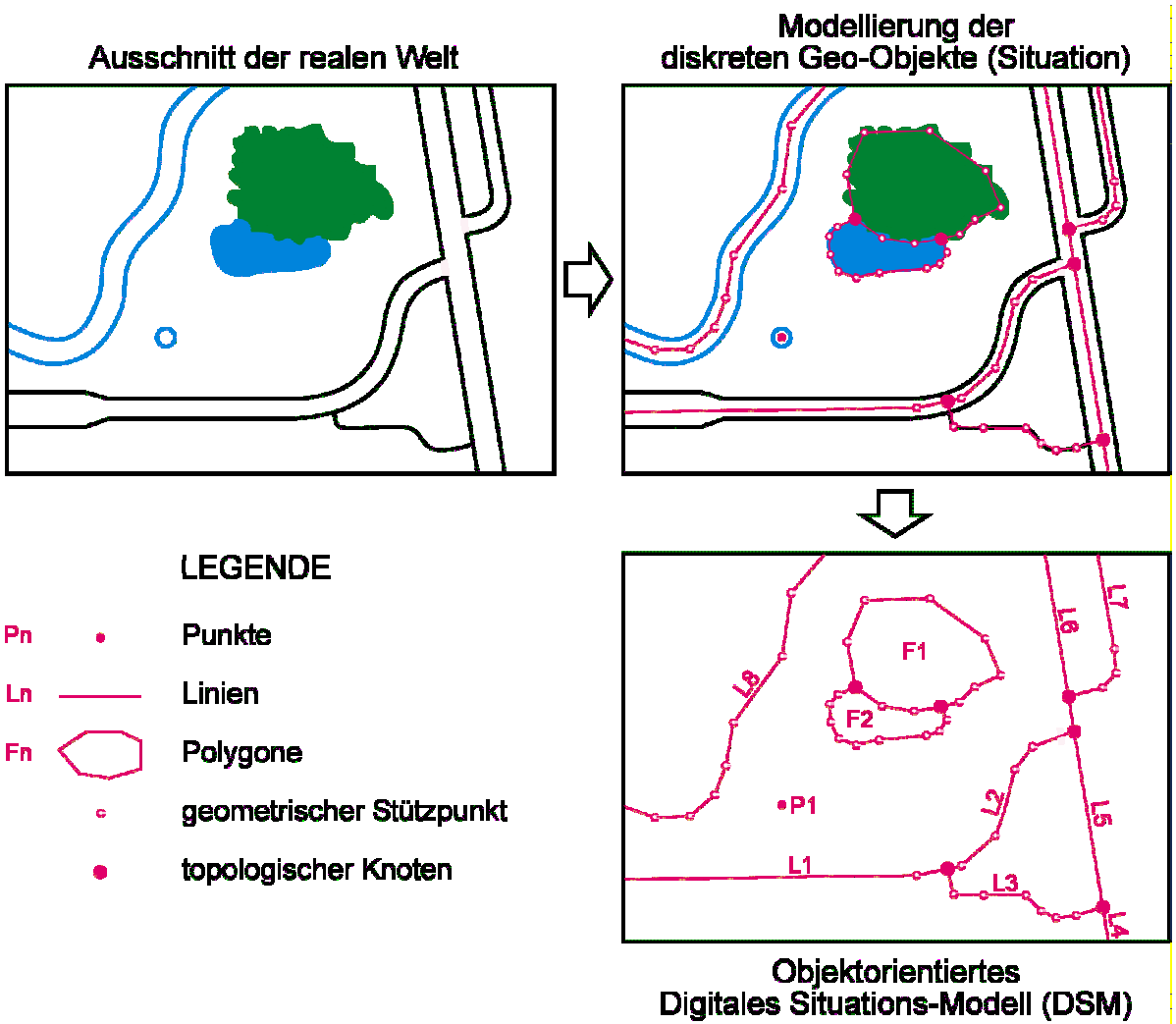
BEV's Topographic Basic-Models – KM50R



BEV's Topographic Basic-Models – DLM (1)



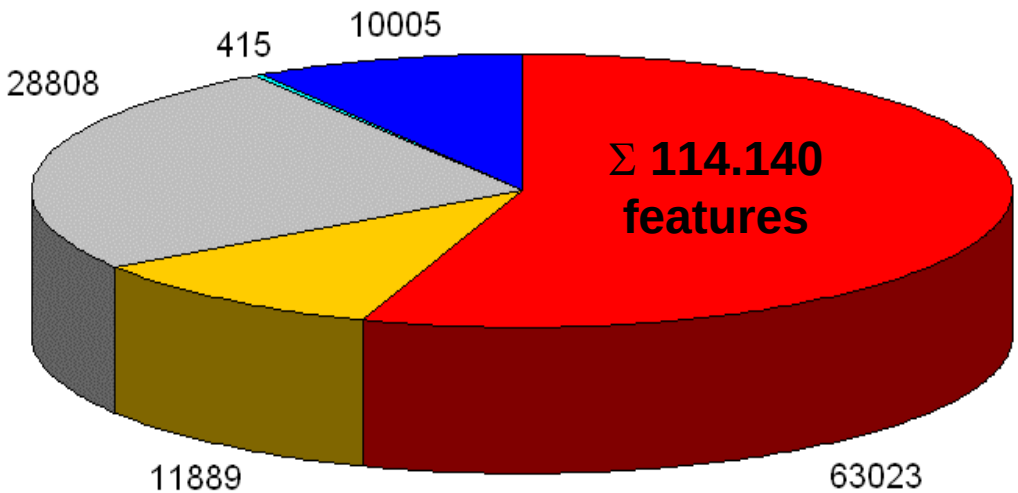
BEV's Topographic Basic-Models – DLM (2)



BEV's Topographic Basic-Models - Comparison

Topographic „Basic-Model “	Digital Landscape Model [DLM]	Cartographic Model 1:50.000 [KM50]
Type of data model	➢ Not bound to a scale ➢ object-oriented ➢ vector data	➢ bound to the scale 1:50.000 ➢ signature-oriented ➢ raster data
Mode of saving the names	➢ Data base	➢ File system
Position of the names	➢ Each name is positioned by a pair of coordinates (no information about the extension of a line or area)	➢ Different versions of name placement (spacing and orientation of the names give us the information about the extension)
Information about qualitiy and quantity	➢ Data base	➢ qualities: font type, font colour, font weight ➢ quantities: font size

Categories of Geographic Names (1)



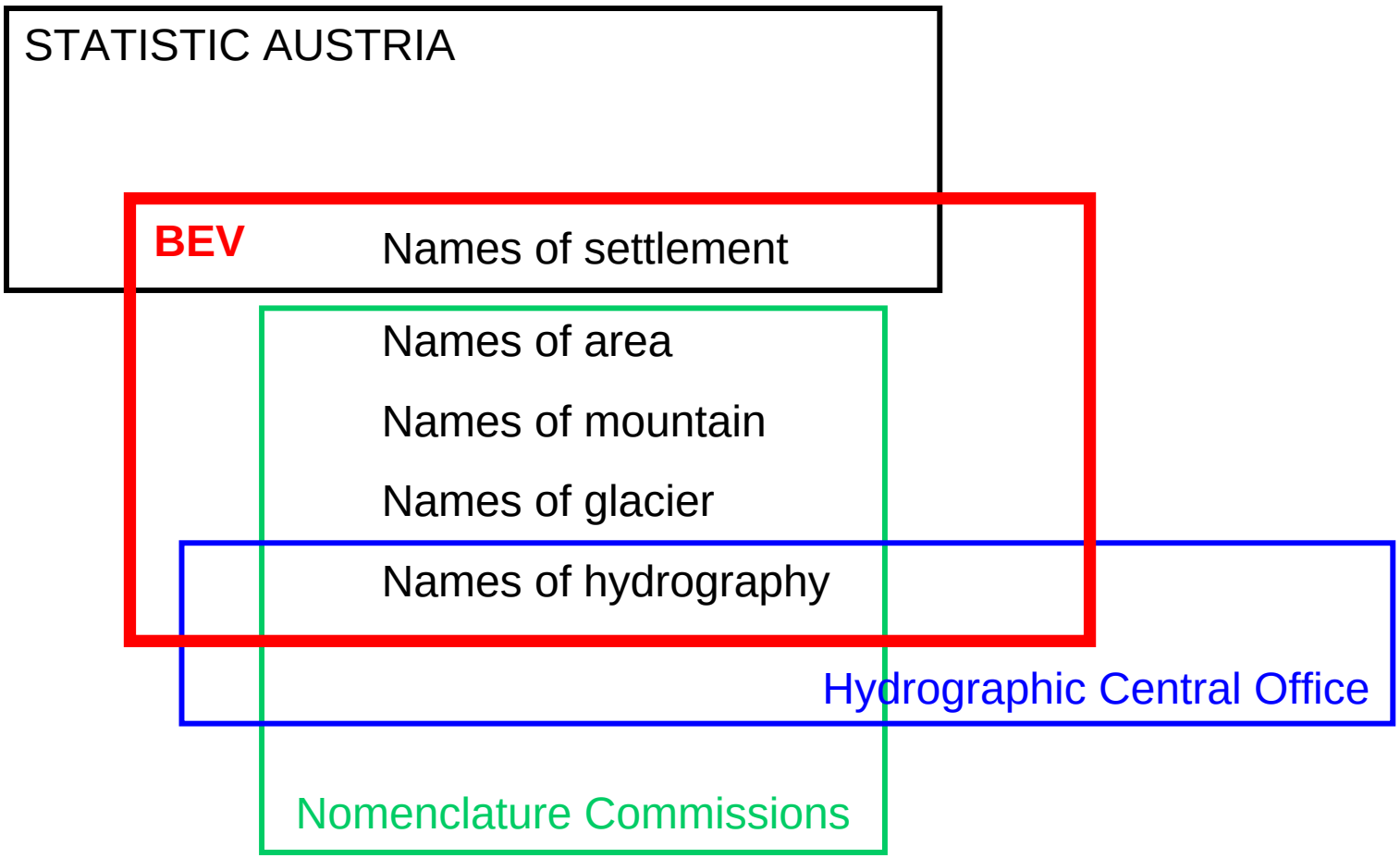
1) Names of settlement
2) Other geographic names
   - Names of area
   - Names of mountains
   - Names of glacier
   - Names of hydrography

Categories of Geographic Names (2)

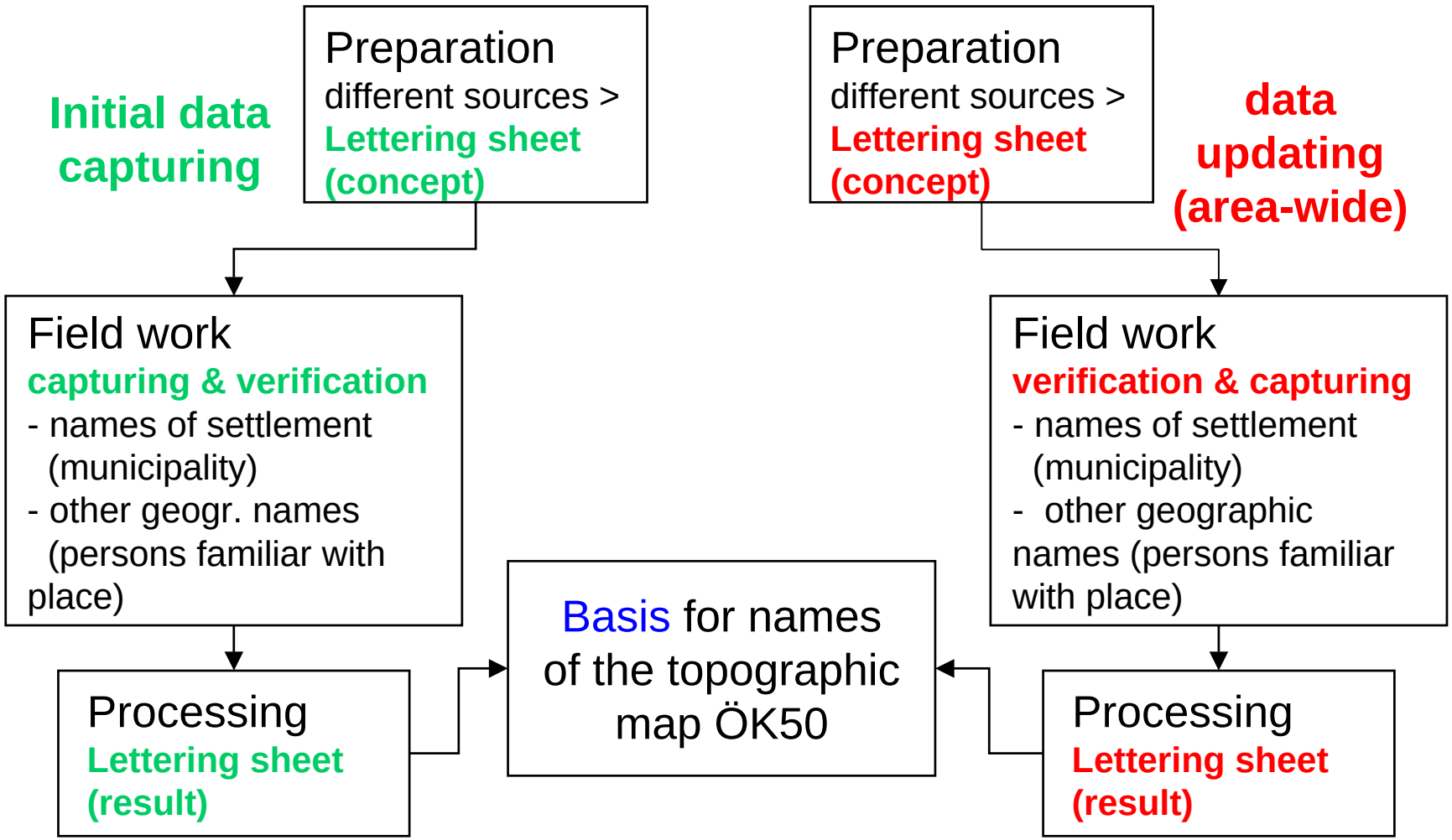
1) Names of Settlement
   - spelling: in accordance with the gazetteer of STATISTIC AUSTRIA (Austrian Office for Statistic)
   - Names have an official character
   - On the strength of cartography only a part of these names can be placed in the topographic base map ÖK50

2) Other geographic names („non settlement names“)
   - Only names are gathered, which are really in use in this region by the population
   - Non settlement names are „official names“, insofar as they are part of official papers
   - So they are binding for the international cartography

Geographic Names - Responsibilities



Workflow for Data Capturing (Analog Map-era)



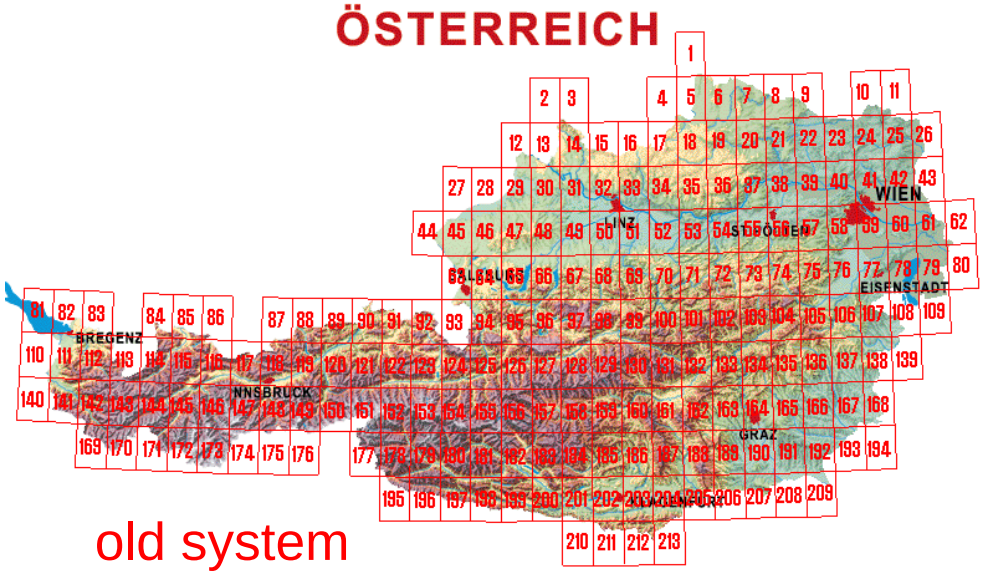
Initial Data Capturing
Main Tasks for the Topographers

- Capturing names as dialect (phonetic) spelling
- Identification and localisation
  - Where is the related object
  - Labeling objects with the correct name
- Extracting names for the scale 1:50.000
- Selecting the correct font type and font size

Preparation in the Office

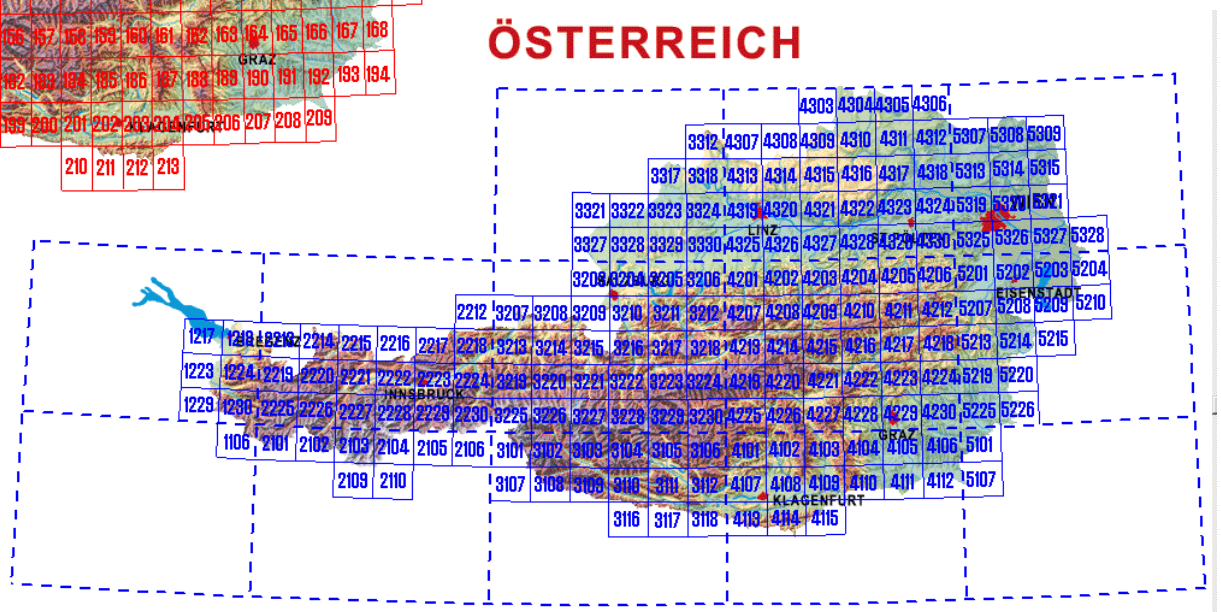
- Collecting and clearly arranged buildup of the names, based on different sources
- Extraction of all for the topographic map 1:50.000 (ÖK50) estimated usefull names from the different documents and inscription in the base map with the scale 1:25.000
- Results of the preparation in office: „lettering sheet“ (Schriftübersicht)
  - **lettering sheet** is prepared separately for each **field sheet** (mapping unit, 1/8 of a maps sheet ÖK50-BMN = „old map“)
  - The sources of the names are written in different designations and colours
  - **lettering sheet** is the most important document of the names for the topographer in the field
  - With the help of different versions of names the topographer receives informations of how solid the different name sources are

Sheet Line System – ÖK50



old system

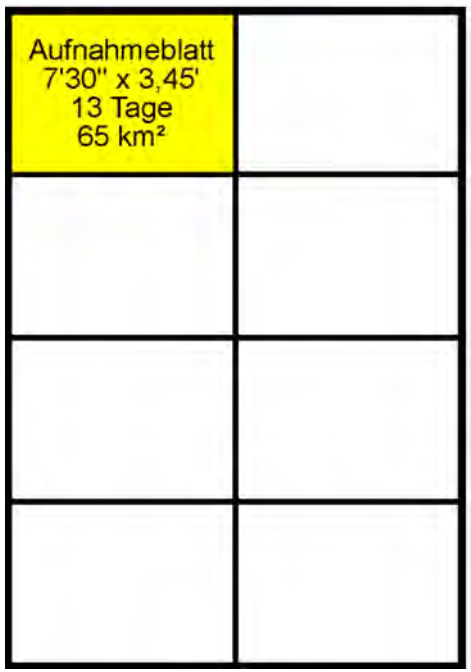
new system



Sheet Division of the Field Sheets

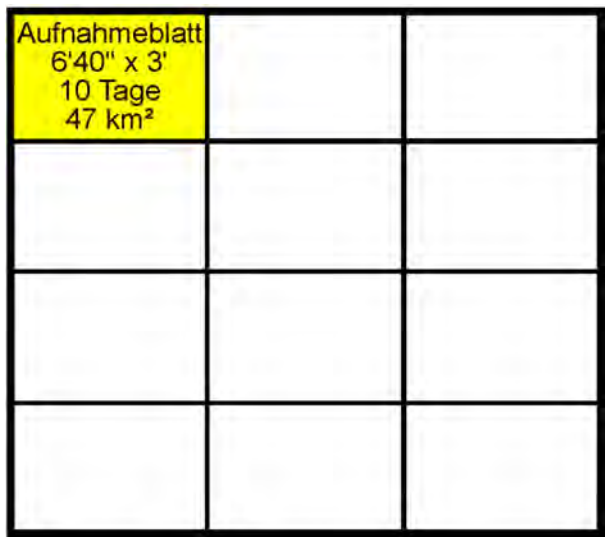
ÖK50-BMN ("old map")

- field sheet (1/8): 80–120 names
- map sheet: 640–960 names



ÖK50-UTM ("new map")

- field sheet (1/12): 55–85 names
- map sheet: 660–1020 names



Data Sources (1)

- Law gazettes of Austria and federal provinces (if they concern to geographic names)
- Gazetteer (Ortsverzeichnis) of Austria, updated version or printout of digital data
- 2. Topographic surveying of Austria > Topographic map 1:144.000
- 3. Topographic surveying of Austria
  - Original mapping results in the scale 1:25.000
  - Provisorily edition of the ÖK50
- 4. Topographic surveying of Austria > with all archived documents
- Cadastral map (scaled down to 1:10.000)
  - Authority for reed names
  - Names of hydrography are also contained
  - Names of isolated objects

Data Sources (2)

- Hydrographic Register of Austria
  - Editor: government department for agriculture and forestry
  - Use of the hydrographic names, if there are no discrepancies to the local usage
- Maps of the Austrian Alpine Association (Alpenverein AV)
  - Very important source for mountains
  - Maps with original scale 1:25.000 > contain a lot of names (more than the ÖK)
  - These names are edited by experts and well-known scientists
  - The conformity with alpine literatur is often given
  - The complete conformity of the names in the ÖK50 und AV-maps fails, because there is a different view of the spelling of names which are spoken in dialect

Data Sources (3)

- Touristic maps, map of walks of private cartographic publishing companies
- Maps of forestry: these maps are often first available during the field work
- Literature of local history und alpine literature (books of hiking and climbing)
- Register of refuges of the Alpine Association
- Brochure of tourism and cartographic panorama
- Railway guide of the Austrian National Railways: Information for the names of railway stations and halts

Data Sources – Names of Settlement

Gazetteer of Austria

26/02/97

OKZ ObKZ		ZB, Z	Gebäude insges.	Wohnungen	Gem.mit Hauptwohnsitz	Haushalte	Wohnbevölk.	Arbeitsstätt.	L + F Betr.-stätt.
Häselgehr									
708 13									
Gerichtsbezirk: Reutte									
Fläche: 5062.60ha									
Katastralgemeinden: Häselgehr 5062.60ha									
Postleitzahlen:									
Gemeindeamt: 6651									
Österr. Karte: 114,144									
Höhenklasse: 8									
		000	210	224	165	202	670	29	-
16924	Grießau	000	31	43	27	41	116	1	-
2	Grießau R/4 1021 (Lorenzhütte Jhtt, Pestkapelle Ki)	000	31	43	27	41	116	1	-
	Alpen:								
4	Grießbachalpe								
16925	Häselgehr	000	179	181	138	161	554	28	-
2	Gutschau R/3	000	11	8	8	8	31	2	-
9	Häselgehr D/2 1006 (47.1824, 10.2901) (Alach E, Häternach R, [illegible])	000	160	164	125	146	502	26	-
8	Schönau W/3 (Ort E)	000	8	9	5	7	21	-	-
	Alpen:								
15	Haglertalalphütte								
16	Hansenstadelhütte								
17	Hochwaldhütte								
	Sonst. Siedlungsnamen:								
12	Jöchleshütte Jhtt								
13	Nockhütte Jhtt								
14	Schwabenhütte Jhtt								
	Zählsprengelübersicht:								
	Häselgehr	000	210	224	165	202	670	29	-

Abb. 3: Ausdruck aus dem Ortsverzeichnis

➢ old version (more details)

Häselgehr										
708 13		**000**	**234**	**185**	**266**	**241**	**716**	**44**	**31**	**55**
Gerichtsbezirk: Reutte										
Fläche: 5.062,46 ha										
Katastralgemeinden: Häselgehr 5.062,46 ha										
Postleitzahl: 6651										
Österr. Karte: 114, 144										
Höhenklasse: 8										
NUTS 3-Code: AT331										
16924	Grießau R 1021	000	40	32	48	45	119	3	1	12
	Lorenzhütte Jhtt, Pestkapelle Ki									
	Alpen: Grießbachalpe									
16925	**Häselgehr D 1006 (47°18'24",10°29'01")**	**000**	**194**	**153**	**218**	**196**	**597**	**41**	**30**	**43**
	Alach E, Gutschau R, Häternach R, Jöchleshütte Jhtt, Luxnach R, Nockhütte Jhtt, Ort E, Rauchwand E, Schönau W, Schwabenhütte Jhtt									
	Alpen: Haglertalalphütte, Hansenstadelhütte, Hochwaldhütte									

➢ new version (less details)

Data Sources – Other Geographic Names

Cadastral Map

Data Sources – Names of Hydrography

Hydrographic Register

FLÄCHENVERZEICHNIS ÖSTERREICHISCHER FLUSSGEBIETE:

SEITE 197

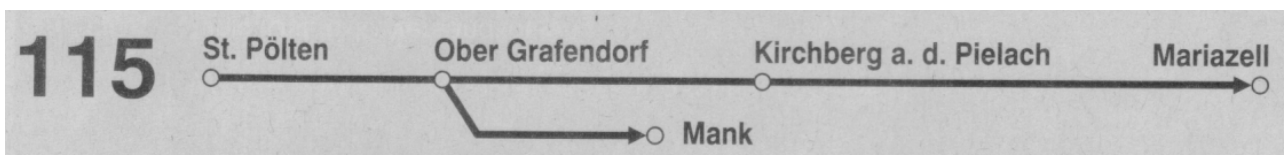
DRAUGEBIET

NR. DER ORDNUNG 2	3	4	5	6	7	GEBIET	FLÄCHE (km^2) DES GEBIETES DER ORDNUNG 7	6	5	4	3	2
						ÜBERTRAG:	.		.	24,67	38,20	.
						Feistritz bis Krumbach	.	.	.	.	62,87	.
						KRUMBACH						
220	316	22	1	0	0	Krumbach bis zum Kreuzbach (188,205)	.	.	4,38	.	.	.
						Krumbach bis zum Kreuzbach	.	.	.	4,38	.	.
						KREUZBACH						
220	316	22	2	1	0	Kreuzbach (im Oberlauf Krennbach genannt) bis zum Assankerbach (188,205)	.	8,14	.	.	.	.
220	316	22	2	2	0	Assankerbach r. (205)	.	2,12	.	.	.	.
220	316	22	2	3	0	Kreuzbach vom Assankerbach bis zum Glitzbach (188,205)	.	0,83	.	.	.	.
						Kreuzbach bis zum Glitzbach	.	.	11,09	.	.	.

Data Sources

Railway Guide of the Austrian National Railways

72	Annaberg
74	Wienerbruck-Josefsberg
78	Erlaufklause
81	Mitterbach
85	**Mariazell**



Field Work
Generally Purpose

- The purpose of the ÖK50-Initial data capturing fieldwork is:
  - To check and complete the results of the photogrammetry
  - To classify object according to the legend of the ÖK50
  - Cartographic generalisation for the scale 1:50.000
- Result: a map concept, where the contents of the ÖK50 is fixed by the topographer
- The capturing of geographic names is a very important part of the activities during the field work

Field Work

Working on Names of Settlement

- These names are basically accepted from the gazetteer > additionally checks in the field are done

- If the name written in the gazetteer is incorrect > in the municipality a special document (data entry form for names) must be completed

Field Work
Working on Names of Settlement

- Contents oft the data entry form:
  - Old and new geographic name
  - Statement to the new names or modified names
  - Ratification of the name changes by official seal of the municipality and by the signature of the mayor or an agent of him
- After the STATISTIC AUSTRIA has noticed the name document > the new or changed names of settlement are accepted in the gazetteer as well as in the Austrian Topographic Map 1:50.000 (ÖK50)
- This approach protects the conformity between the names of the gazetteer and the ÖK50 to a large extent

Field Work

Data Entry Form for Names

Aufnahmeblatt: ÖK 63/2-N

Verifikator: DANHEL

Gemeinde: GÖMING

ERHEBUNG ÜBER SIEDLUNGSNAMEN
(Gemeinden, Ortschaften u. Ortschaftsbestandteile)

Jahr: 1994

Erläuterungen siehe Rückseite!

Beleg für: Österr. Statist. Zentralamt

Alter Stand	Neu	Nähere Angaben zu geänderten bzw. neuen Namen	Erledigung
(1)	(2)	(3)	(4)
O Reinberg			
OB Eßthal (W.)	Eßtal (W.)	RICHTIGE SCHREIBWEISE (NACH SALZB. ORTSNAMENKOMMISSION)	
O Keinating			
OB Furth (W.)	Furt (W.)	—— " ——	

Die Gemeinde bestätigt die in Spalte 2 bzw. 3 eingetragenen Angaben und wünscht die Berücksichtigung der Änderungen in der Siedlungsevidenz bzw. im Ortsverzeichnis.

Gemeindesiegel: GEMEINDEAMT GÖMING BEZ. SALZBURG UMG.

Datum: 14.6.1994

Unterschrift: [signature]

ÖStZ - X. 004 00. 88-0

Field Work

Data Entry Form for Names (Discription)

- column 1: in front of the names (old status) the following abbreviations must be put for the correct identification:
  - **OG:** **O**rts**G**emeinde (municipality)
  - **O:** **O**rtschaft (locality)
  - **Ob:** **O**rtschafts**b**estandteil (part of locality)
- column 2:
  - recording of all the namens which changes
  - recording of new names (then column 1 will be blank)
  - deleting names (reason must be registered in column 3)
- column 3: details of the changes, which are listed in column 2
  - legal basis (the provisions of national, regional and local law)
  - date the changing becomes effective
  - reason, for the deleting of a name
- column 4: notation of execution of the STATISTICS AUSTRIA. Specification of details, if the reasons for changing have not been noticed

Field Work

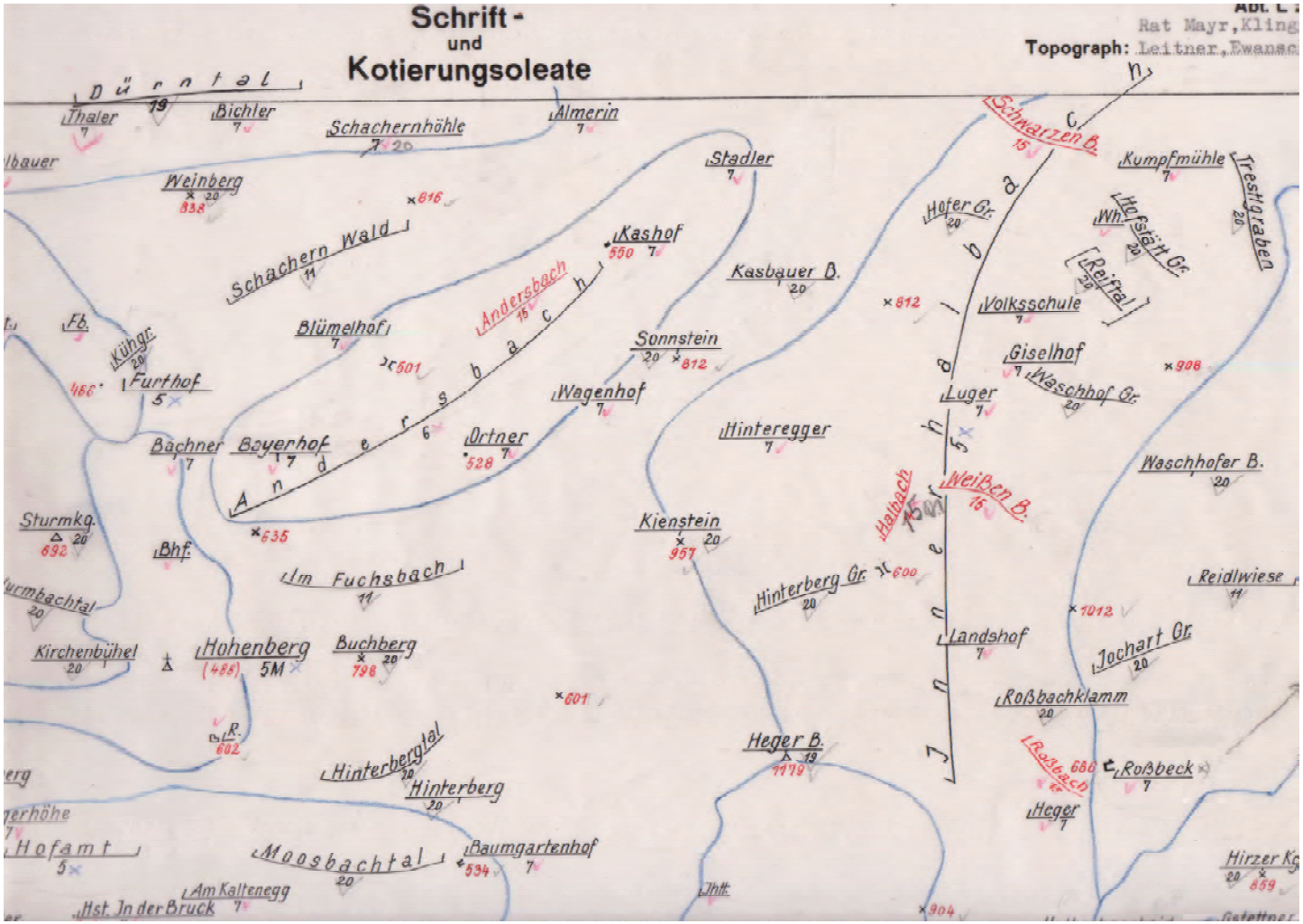
Working on other geographic names

- Principle for the topographer (working according to the technical instructions)
  - Ask persons which are familiar to the place (foresters, teachers, pastors, members of Alpin clubs, farmers...)
  - Capture only names, which are really in use in this area
  - Unknown names, which are part of the lettering sheet (Schriftübersicht) must not be captured
  - No name is to be taken in without being checked
- Defining the position and the boundary of the name
- To differentiate the categories of names it is important to select the correct font type (for example: area-names and names of mountains have a different font type)
- Consolidated findings are noted in the lettering sheet (Schriftübersicht)
- Concept of the lettering sheet will still be prepared during the field work
  - Overview of the captured names

Office Treatment – Data Processing

- Editing and fair drawing of all field work results by the topographer
- Drawing a lettering sheet for the fixing of all geographic names
  - Names and elevation numbers are closely connected, so they are charted on the same transparent paper
  - Selection of the names for the final scale 1:50.000 (paying attention to the maximal number of names)
  - Correct allocation of the names by drawing a position mark which gives the following information:
    - Pointer to the related object
    - spreading of the name
  - Definition of font type and font size
    - Putting the according name number under the pointer
- Petition to the respective nomenclature commission (Nomenklatur- bzw. Ortsnamenkommission) to give a statement on the captured non settlement names

Initial Data Capturing – Lettering Sheet

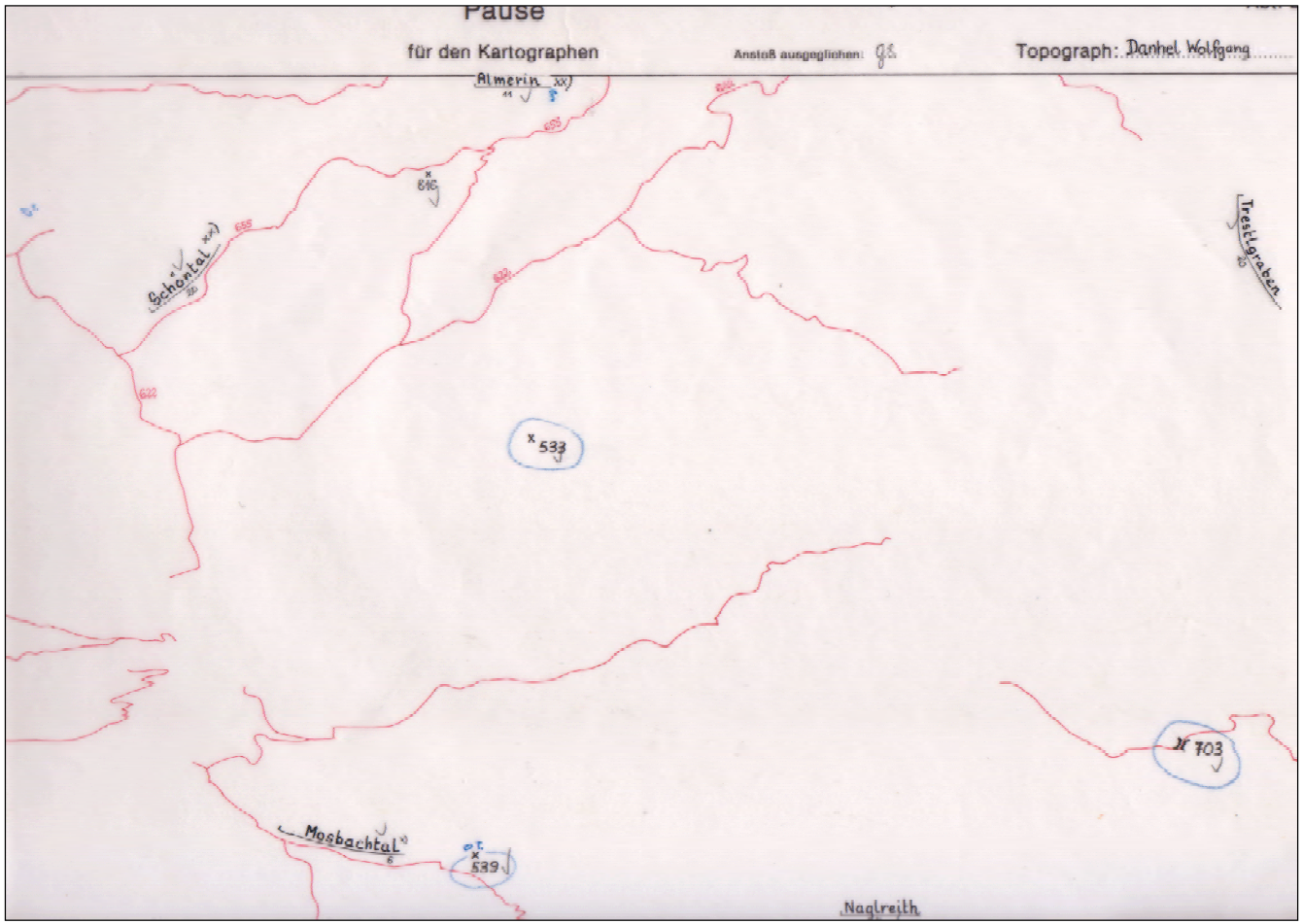


Updating

- The need for updating names: day to day changing of the landscape
  - New names are coming into being
  - Names are relating to other objects
  - Names are forgotten
  - There are reasons to change the diction of names
- Preparing for field work: Similar to the Initial data capturing of names > Creating of a lettering sheet (concept for each mapping unit)
- Field work:
  - Municipal offices are the first contact point for updating geographic names
  - If the information of the municipal offices are to short > frequenting appropriate persons, which are name experts in their regions
  - Necessary changes of names are mapped in the **lettering sheet**
  - This transparency is the basis for the cartographic editing afterwards
  - Statement of the nomenclature commission (non settlement names)
  - **BEV has the final decision** about the fixing of the non settlement names

Updating

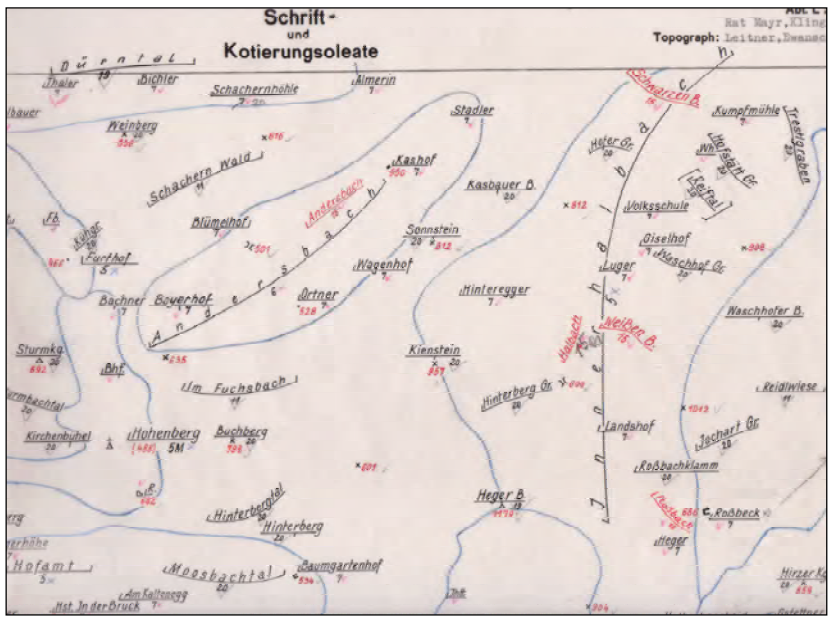
lettering sheet with foot path marking and spot elevation



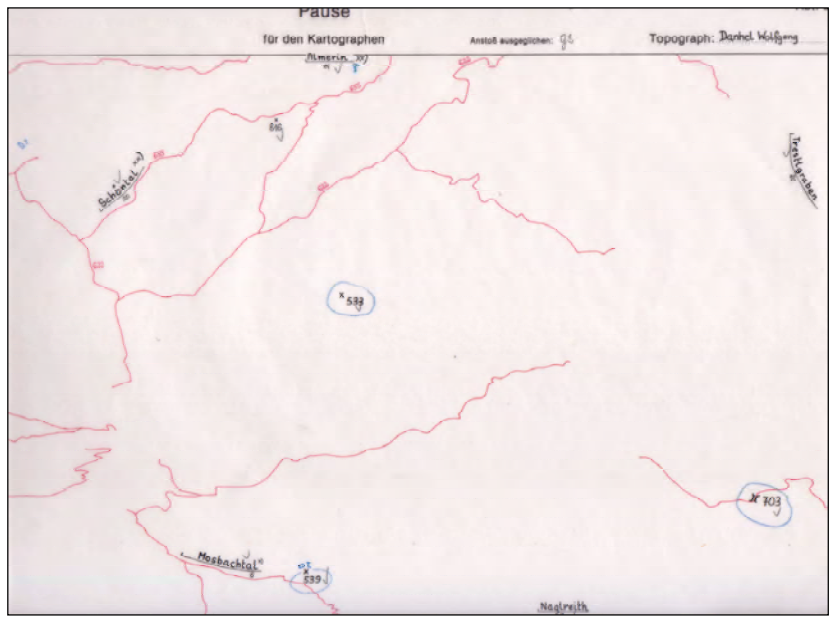
Data Capturing of Geographic Names

graphical results

Initial data capturing

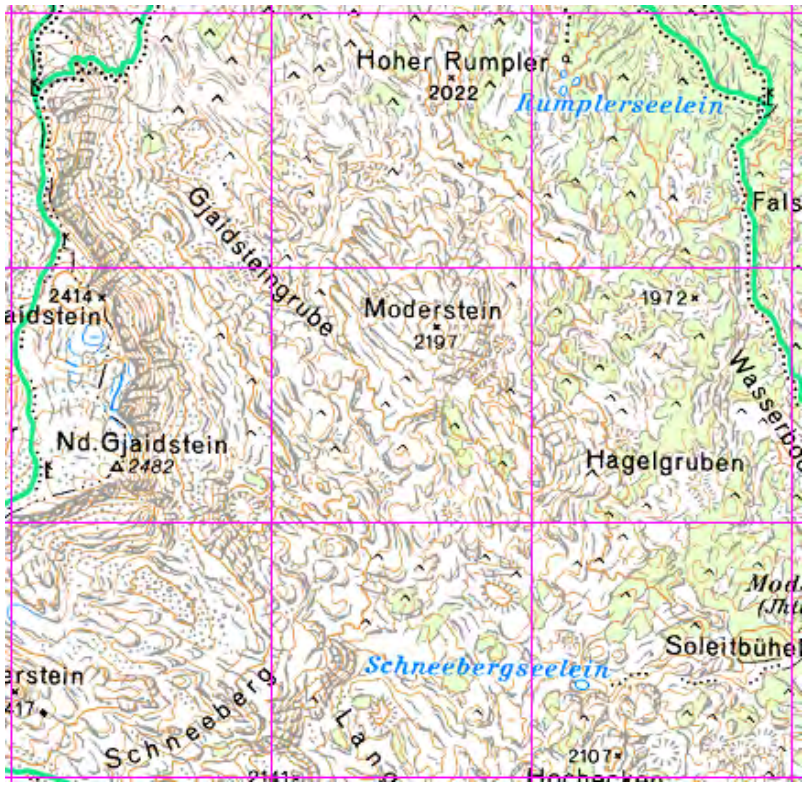


Data updating

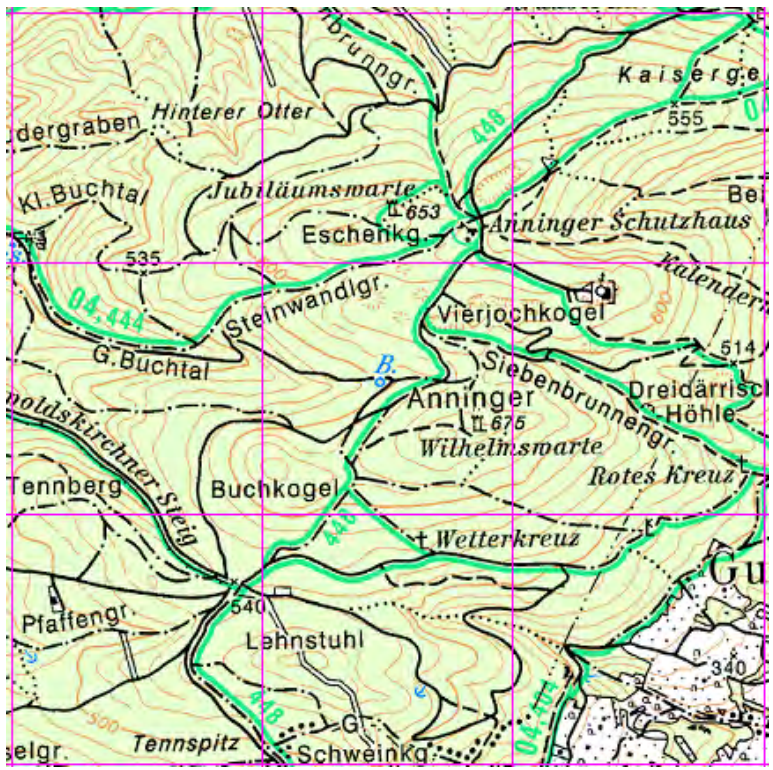


Visualisation of the names in the topographic map 1:50.000

Map extract (3 x 3 km = 9 km²)

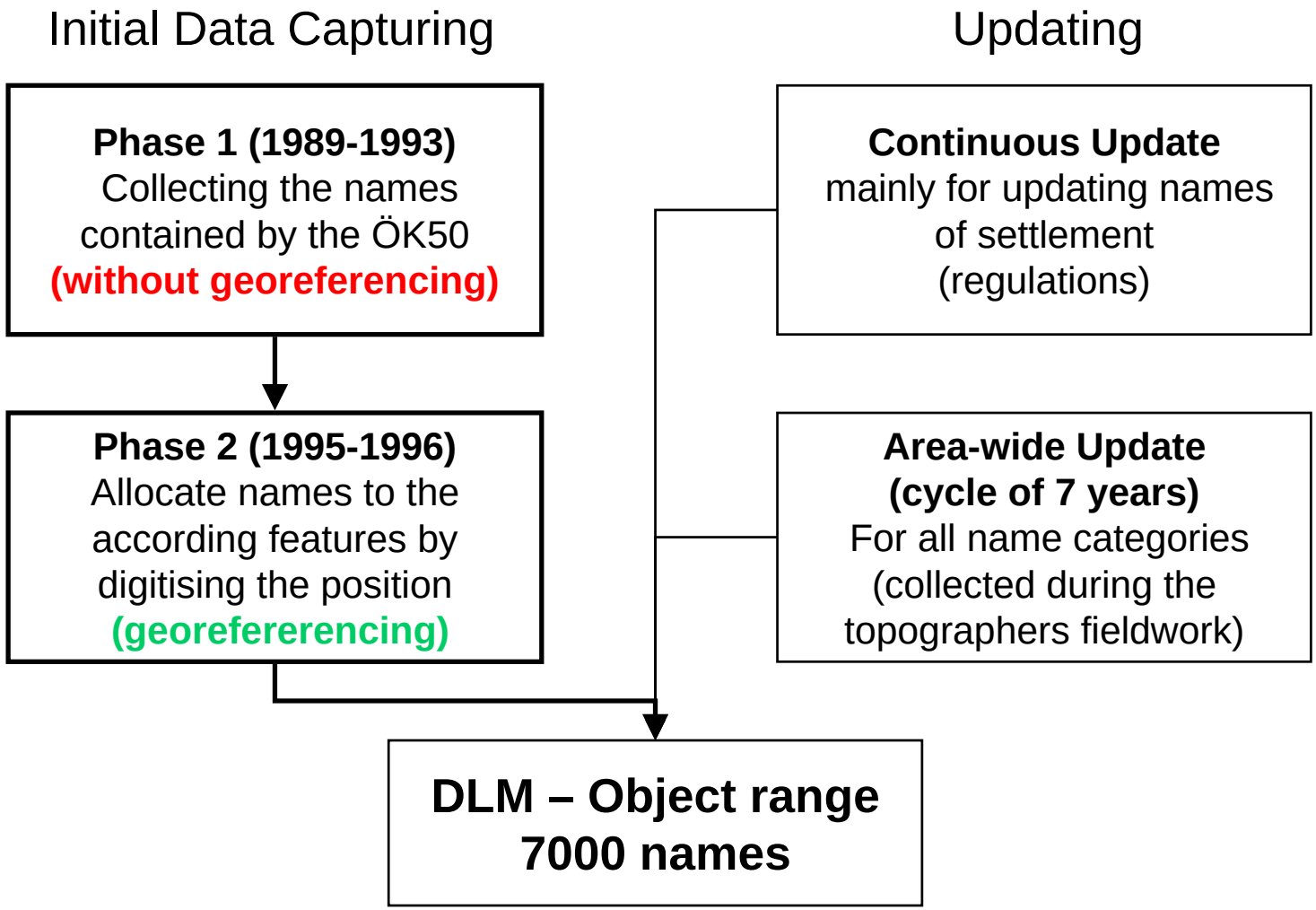


Area of low name density



Area of high name density

Workflow for Building-up the Database of Names (Digital era)



Initial Data Capturing – Phase 1 (a)

- 1989 –1993: digital data collection of the digital names contained by the Austrian Topographic Map ÖK50 (scale 1:50.000), using only a simple personal computer
- Storage of about 114.000 names in a database (dBase) with the following attributes:
  - Administrative district
  - Font (font type und font size according the catalogue of cartographic signatures of the ÖK-50)
  - Height above sea level (if the name is assigned to a elevation number in the ÖK50)

Initial Data Capturing – Phase 1 (b)

GEONAM (Statistik) Seite 1

Suchparameter: **martin**

BDL

ÖK A-Blatt	Bezirk	Schrift	Höhe
Martinsbichl			
92 / 1-S	506 Zell am See	20	1327
St. Martin bei Lofer			
92 / 3-N	506 Zell am See	5	633
St. Martin bei Lofer			
92 / 4-N	506 Zell am See	5	633
St. Martin am Tennengebirge			
126 / 1-N	504 St Johann im Pongau	5	949
St. Martinb.			
126 / 1-S	504 St Johann im Pongau	15	0
Hst. Niedernfritz-St. Martin			
126 / 1-S	504 St Johann im Pongau	7	0
Martiniberg			
157 / 3-N	505 Tamsweg	6	0
St. Martin			
157 / 3-N	505 Tamsweg	5	1067
Martiner Berg			
157 / 3-N	505 Tamsweg	20	1356
St. Martiner Aineckhtt.			
157 / 3-N	505 Tamsweg	7	1760

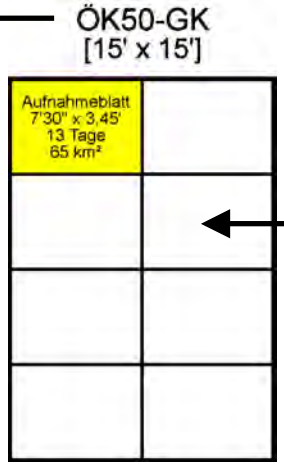
GEONAM (Statistik) Seite 1

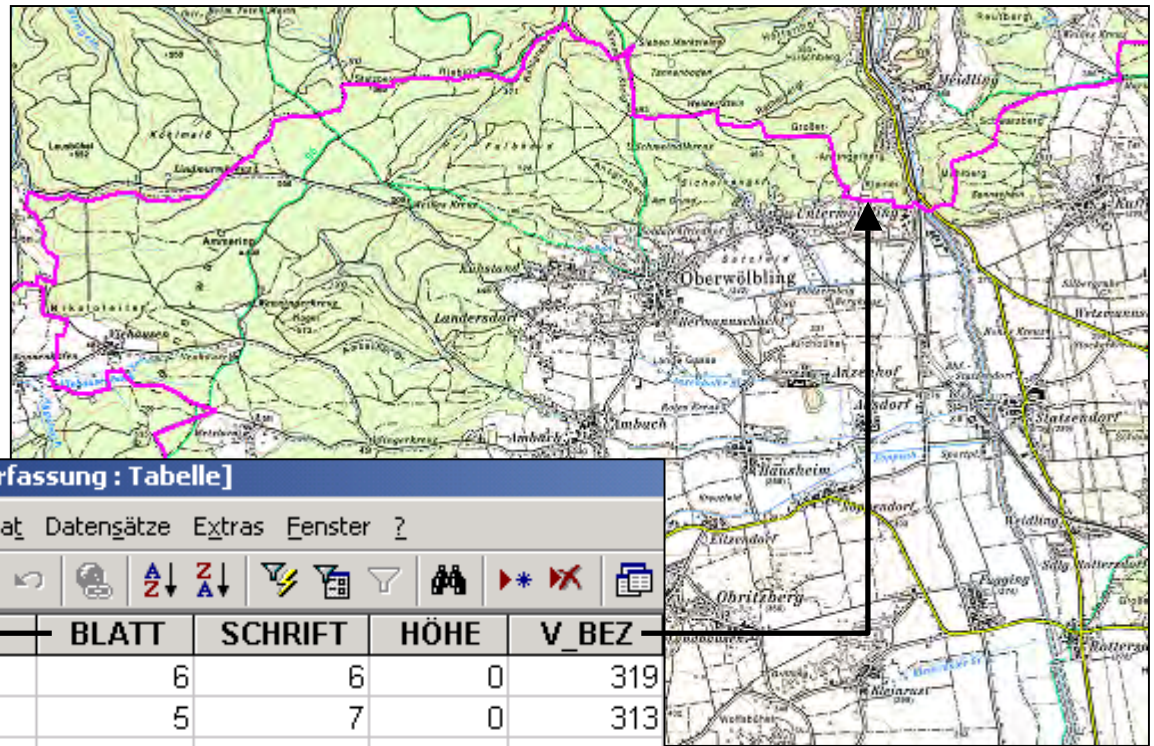
Suchparameter: BDL SCHRIFT HÖHE=3300-3700m

ÖK A-Blatt	Bezirk	Schrift	Höhe
Reichenspitze			
151 / 1-S	506 Zell am See	19	3303
Dreiherrnspitze			
151 / 4-N	506 Zell am See	19	3499
Umbalköpfl			
151 / 4-N	506 Zell am See	20	3426
Westl. Simonysp.			
151 / 4-N	506 Zell am See	20	3481
Östl. Simonysp.			
151 / 4-N	506 Zell am See	20	3448
Vd. Maurerkeesk.			
151 / 4-N	506 Zell am See	20	3325
Ht. Maurerkeesk.			
151 / 4-N	506 Zell am See	20	3311
Großer Geiger			
151 / 4-N	506 Zell am See	19	3360
Kleinvenediger			
152 / 3-N	506 Zell am See	20	3471
Venedigersch.			
152 / 3-N	506 Zell am See	20	3407
Großvenediger			
152 / 3-N	506 Zell am See	18	3666
Mt. Bärenkopf			
153 / 2-S	506 Zell am See	20	3358
Gr. Bärenkopf			
153 / 2-S	506 Zell am See	20	3396
Hohe Dock			
153 / 2-S	506 Zell am See	19	3348
Ht. Bratschenkopf			
153 / 2-S	506 Zell am See	20	3413
Vd. Bratschenkopf			
153 / 2-S	506 Zell am See	20	3401
Klockerin			
153 / 2-S	506 Zell am See	19	3425

Initial Data Capturing – Phase 1 (b)

Field sheet





Microsoft Access - [ÖK 38 - Namen-Ersterfassung : Tabelle]

Datei Bearbeiten Ansicht Einfügen Format Datensätze Extras Fenster ?

NAME	BLATT	SCHRIFT	HÖHE	V_BEZ
Absdorf	6	6	0	319
Adalbertrast	5	7	0	313
Adletzberg	8	6	211	319
Ahrenberg	7	6	0	321
Aigen	5	6	0	313
Alaunb.	2	15	0	301
Almerfeld	4	11	0	313
Alte Haid	1	11	0	313

Initial Data Capturing – Phase 2 (a)

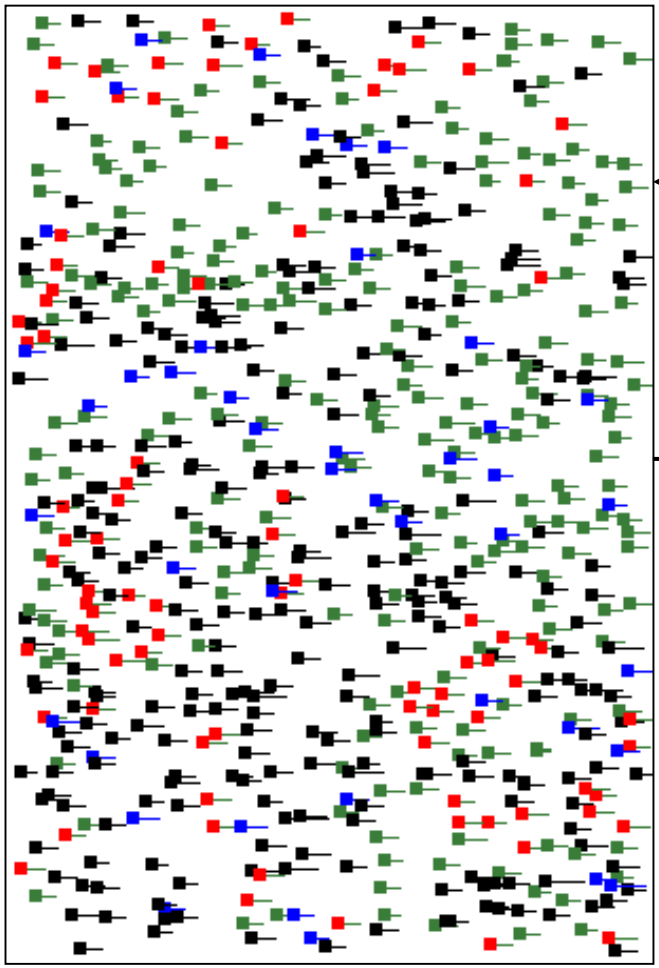
- 1995 –1996: Georeferencing the names in the national coordinate system
- Assigning the name to a feature after defining a suitable feature position, which is done by the topographers using the ÖK25V
  - Church for a populated place (if possible)
  - Highest place for a mountain name
  - Center of the extent of the name in the map, if an accurate localisation is not possible or does not exist
  - For hydrographic names a point lying on the relevant hydrographic feature and near the name in the map
- „OnScreen“-Digitising of the feature positions
- The result is stored in an ORACLE-database

Initial Data Capturing – Phase 2 (b)

- Capturing of about 115.000 geographical names
- Based on the name source of the ÖK50
- Each name was assigned a position and several attributes
- Some Names were NOT digitised:
  - All abbreviations (e.g. Fb., SG, Stb., etc.)
  - Names that are not proper names (z.B. stadium, bath, golf course etc.)
- Initial data acquisition was finished 1996
- Update of data
  - Periodic update with 7-year cycle, done by topographers
  - Continuous update for important changes

Initial Data Acquisition – Phase 2 (3)

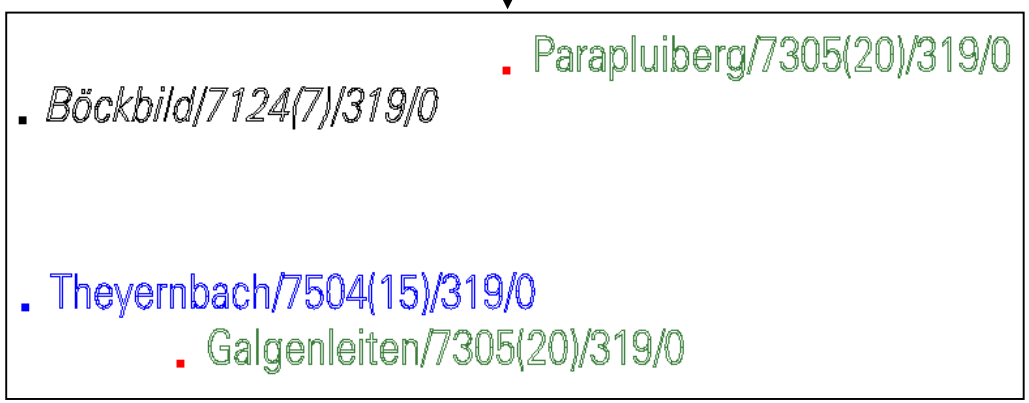
ÖK50 – map sheet 38 Krems/Donau



Names of the ÖK50 map sheet 38

- **Names of settlement (□)**
- **Names of area (□)**
- **Names of mountains (□)**
- **Names of hydrography (□)**

detailed cutout



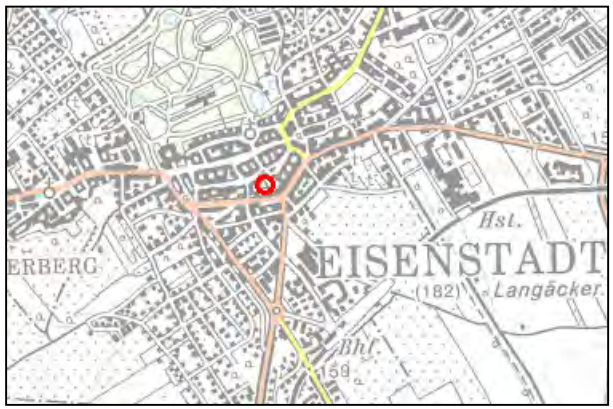
Overview of the different cases of name-positions

Position	Accurate	Less accurate
Names of settlement	- main church, main chapel (settlements) - center of object (isolated building)	- main crossroad - chapel - center of built-up area - center of the name placement in KM50
Names of area	X	- center of the area - center of the name placement in KM50
Names of mountains	- trigonometric point - cross on summit - spot elevation	- position designed by Contour - center of the name placement in KM50
Names of glaciers	X	- center of the glacier - center of the name placement in KM50
Names of hydrography	- center of object (point features of hydrography)	- center of standing water (lakes, ponds) - center of the name placement in KM50 of flowing water

>

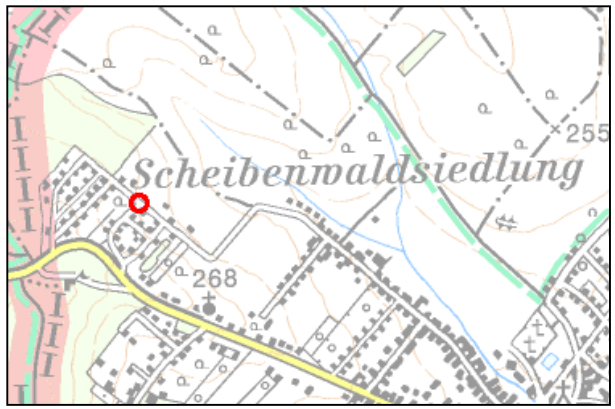
Position – Names of Settlement

Accurate



main church

Less accurate



supposed main crossroad

center of object (refuge)

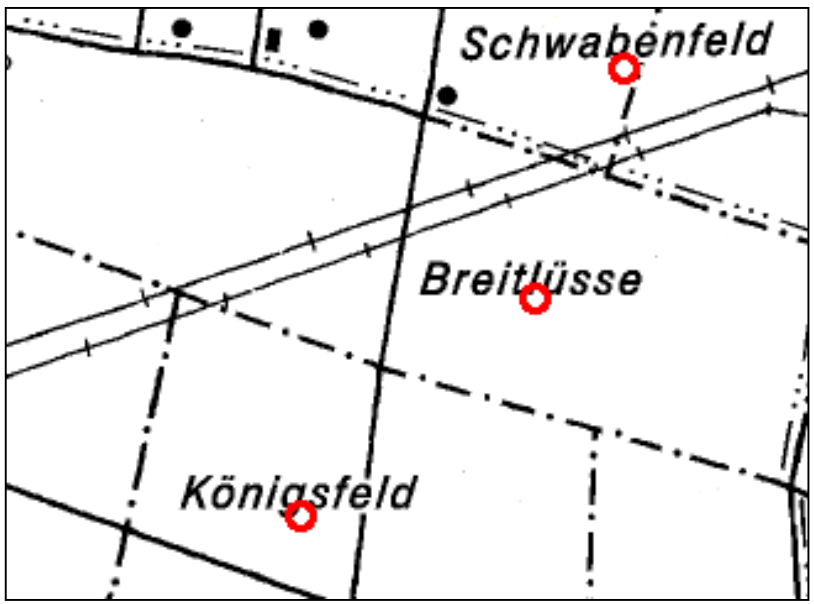
center of the name placement

>

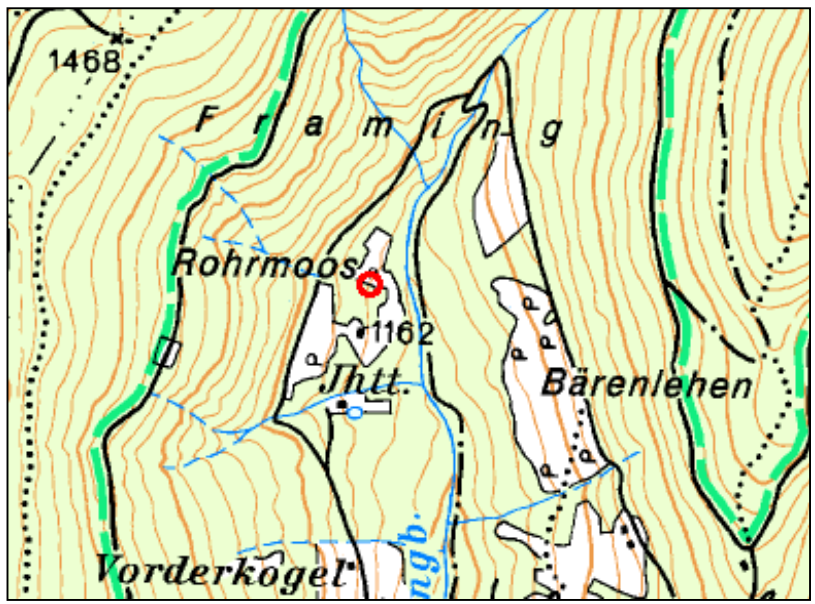
Position – Names of Area

Less accurate

center of the name placement



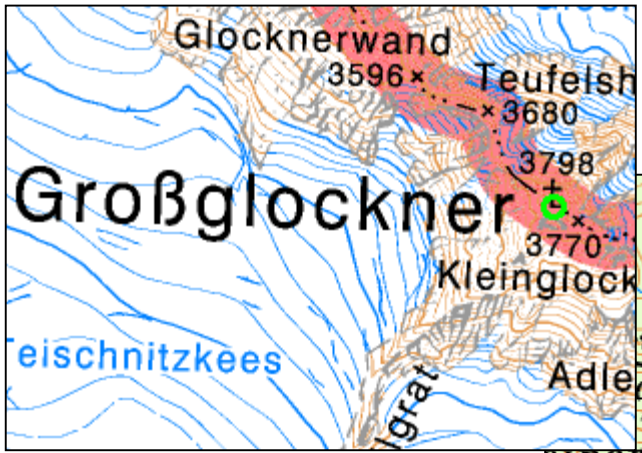
Center of the area



>

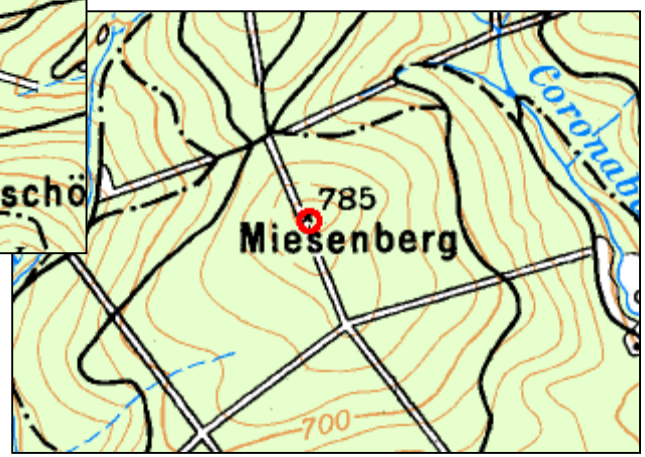
Position – Names of Mountain (accurate)

cross on summit



trigonometric point

spot elevation



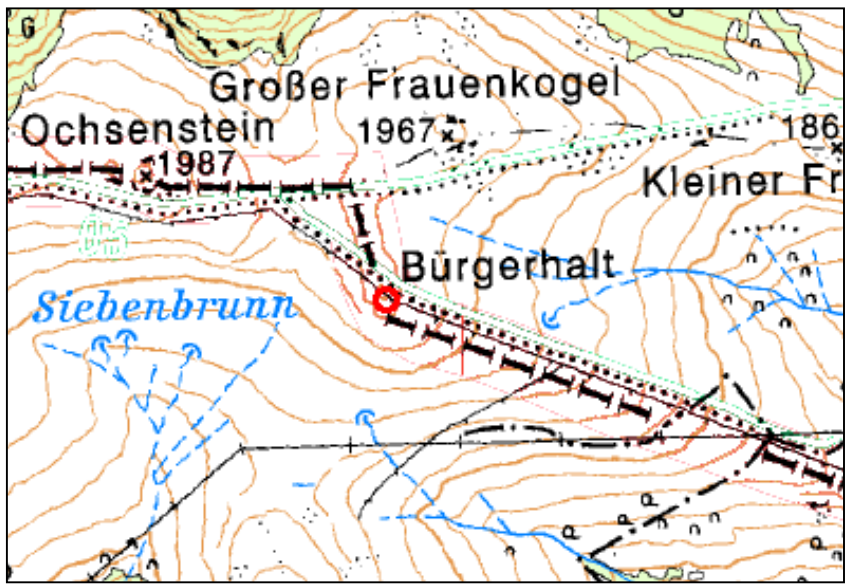
- Cross on summit
- trigonometric point
- spot elevation

>

Position – Names of Mountain (less accurate)

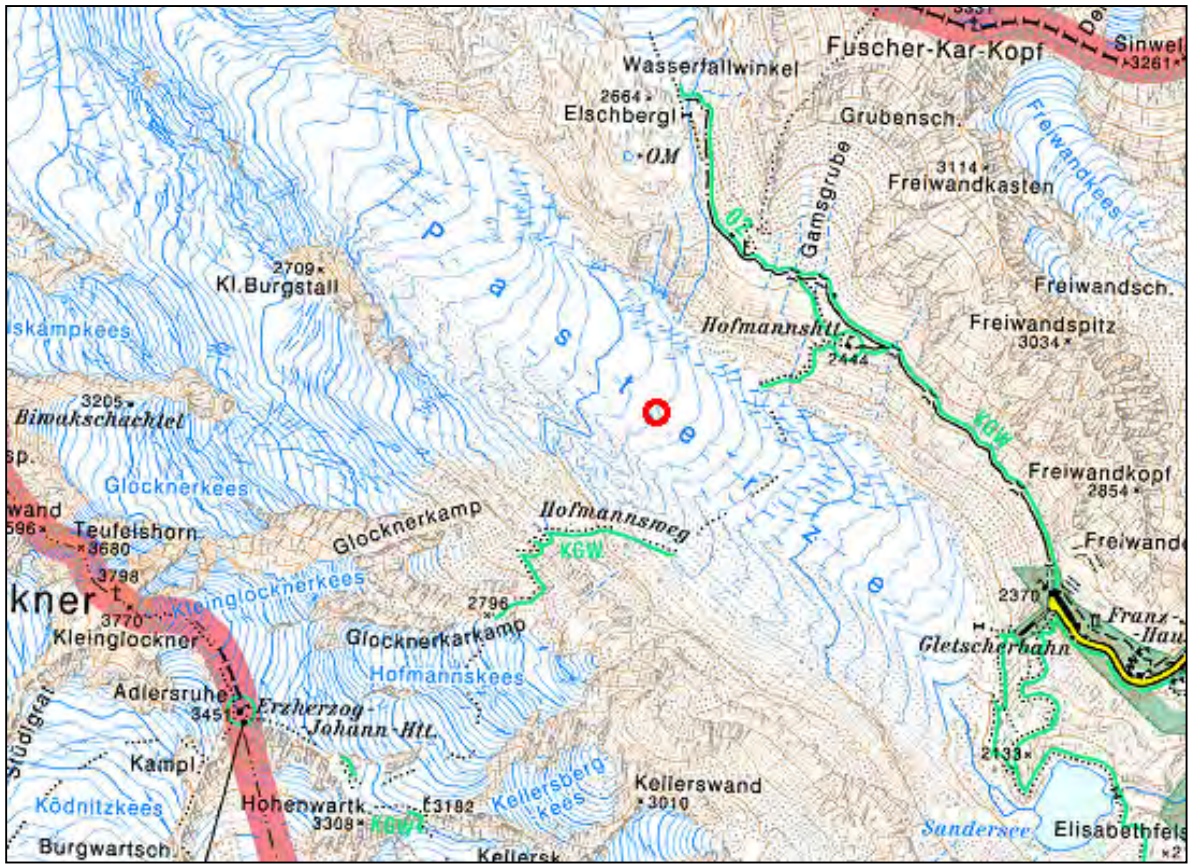
center of the name placement

position designed by contour



>

Position – Names of Glaciers (less accurate)



- center of the name placement
- center of the glacier

>

Position – Names of Hydrography (accurate)

Point features of hydrography
Center of the object

waterfall

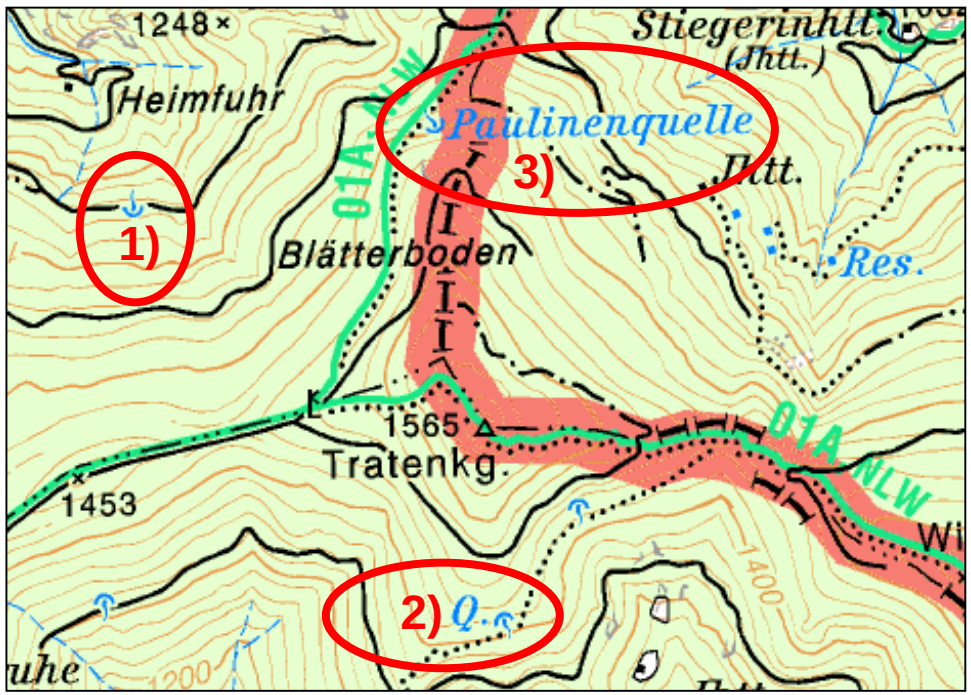
spring

>

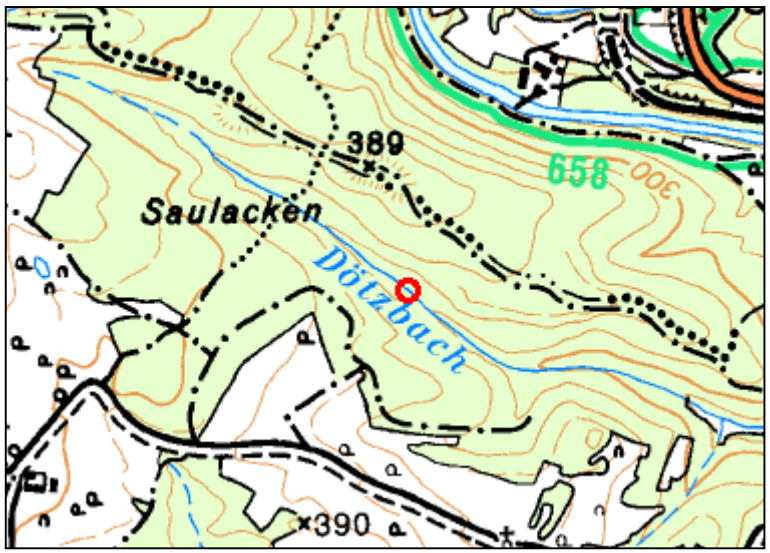
Position – Names of Hydrography (accurate)

Different visualisation of a spring

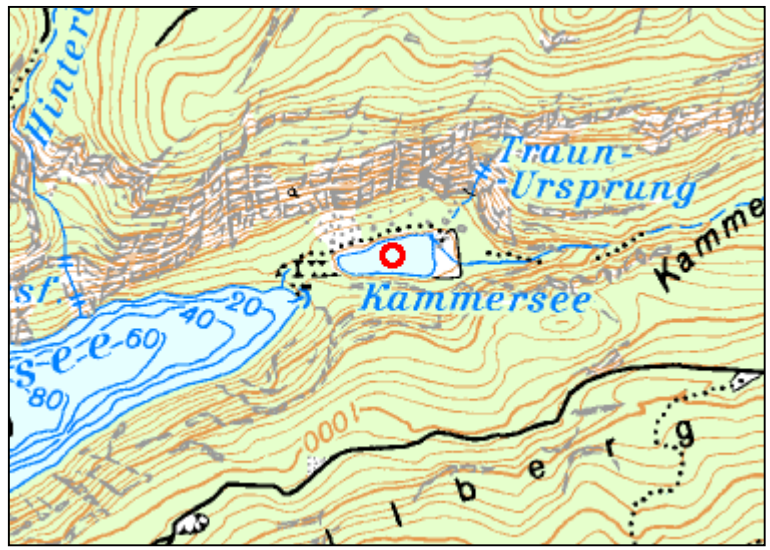
1) Only with the signature (less important)
2) Signature with abbreviation (important)
3) Signature and object name (very important)



Position – Names of Hydrography (less accurate)



Line features of Hydrography
center of the name placement
on the centerline



Area features of Hydrography
Center of the lake

Georeferencing

- The old national grid is still used for georeferencing:
  - Geodetic datum: **MGI** (**M**ilitär **G**eographisches **I**nstitut)
  - Projection: Gauss-Krüger-Projection (3° strips)

- Transformation to other coordinate systems
  - **U**niversal **T**ransversal **M**ercator (**UTM**) / WGS84
  - Geographic Coordinates / WGS84
  - Lambert conformal conical projection

Database extract – Coordinate system (1)

1)

RW_GAUSS	HW_GAUSS	MER_	LÄNGE_GEO	BREITE_GEO
-67601,910	215152,670	M34	33 06 35,43	47 04 20,74
79890,380	236837,240	M28	29 03 20,88	47 15 57,94
70733,290	351820,922	M31	31 57 12,71	48 18 04,6
-21419,040	295526,170	M31	30 42 50,6	47 47 54,71

2)

RW_UTM	HW_UTM	MER	LÄNGE_GEO	BREITE_GEO
533570,4	5213263,38	15	15 26 31,784	47 04 19,306
680693,6	5237441,59	9	11 23 19,182	47 15 55,975
447043,4	5349968,66	15	14 17 09,319	48 18 02,507
353723,9	5295693,3	15	13 02 47,954	47 47 52,693

Display the **position of names** in different coordinate systems

1) Gauss-Krüger-Projection & Geographic Coordinates (MGI)
2) UTM-Projection & Geographic Coordinates (WGS84)
3) Lambert conformal conical projection (WGS84)

3)

RW_LAMB	HW_LAMB
560159,63	354660,09
252950	375846,24
470714,89	489486,4
378588,03	433215,74

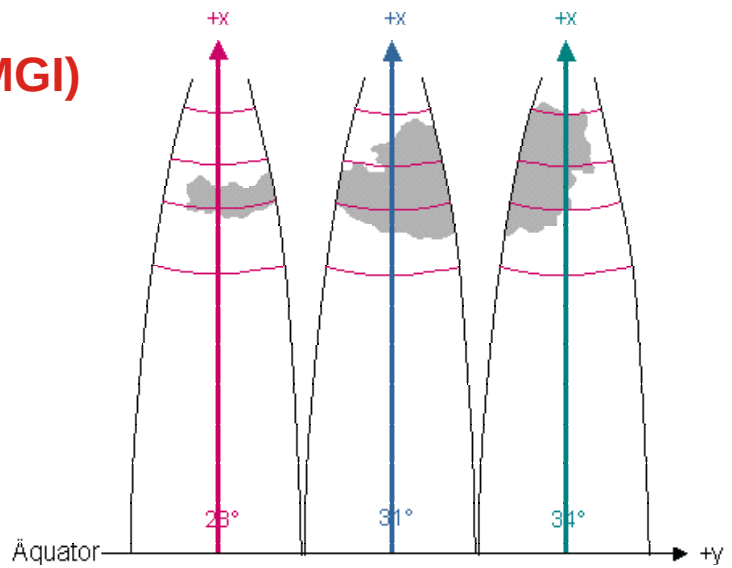
>

Database extract – Coordinate system (2)

1)	2)	3)	4)	5)
RW_GAUSS	HW_GAUSS	MER_	LÄNGE_GEO	BREITE_GEO
-67601,910	215152,670	M34	33 06 35,43	47 04 20,74
79890,380	236837,240	M28	29 03 20,88	47 15 57,94
70733,290	351820,922	M31	31 57 12,71	48 18 04,6
-21419,040	295526,170	M31	30 42 50,6	47 47 54,71

Gauss-Krüger-Projection (Map datum: MGI)

1) **Easting**
2) **Northing**
3) **Meridional Zone (3)**
   (M28°, M31°, M34° East to Ferro = 17°40‘ west of Greenwich)
4) **Geographic longitude**
5) **Geographic latitude**

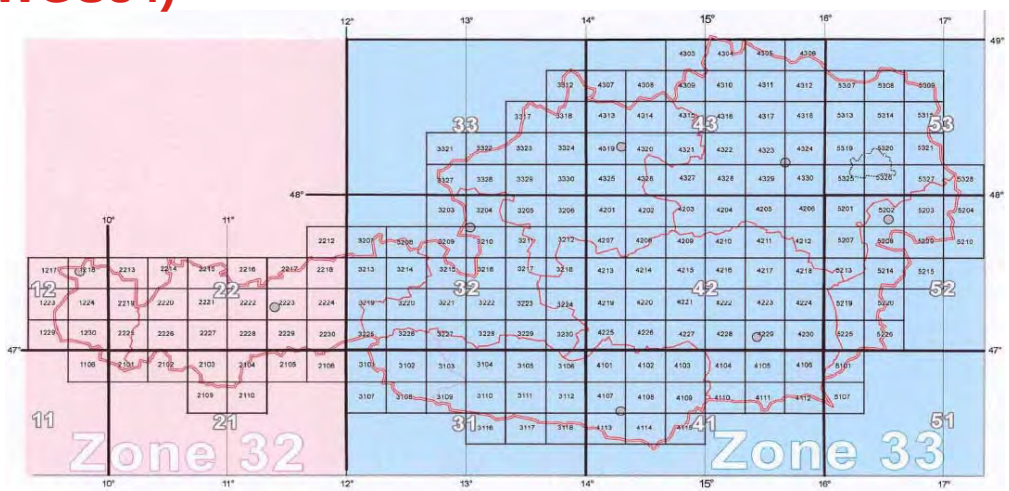


Database extract – Coordinate system (3)

1)	2)	3)	4)	5)
RW_UTM	HW_UTM	MER	LÄNGE_GEO	BREITE_GEO
533570,4	5213263,38	15	15 26 31,784	47 04 19,306
680693,6	5237441,59	9	11 23 19,182	47 15 55,975
447043,4	5349968,66	15	14 17 09,319	48 18 02,507
353723,9	5295693,3	15	13 02 47,954	47 47 52,693

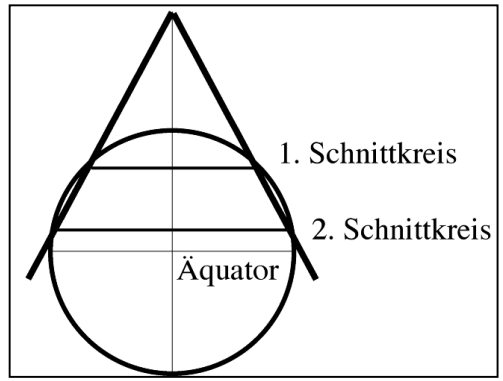
UTM-Projection (Map datum: WGS84)

1) **Easting**
2) **Northing**
3) **Meridional Zone (2)**
   (9°, 15° East to Greenwich)
4) **Geographic longitude**
5) **Geographic latitude**



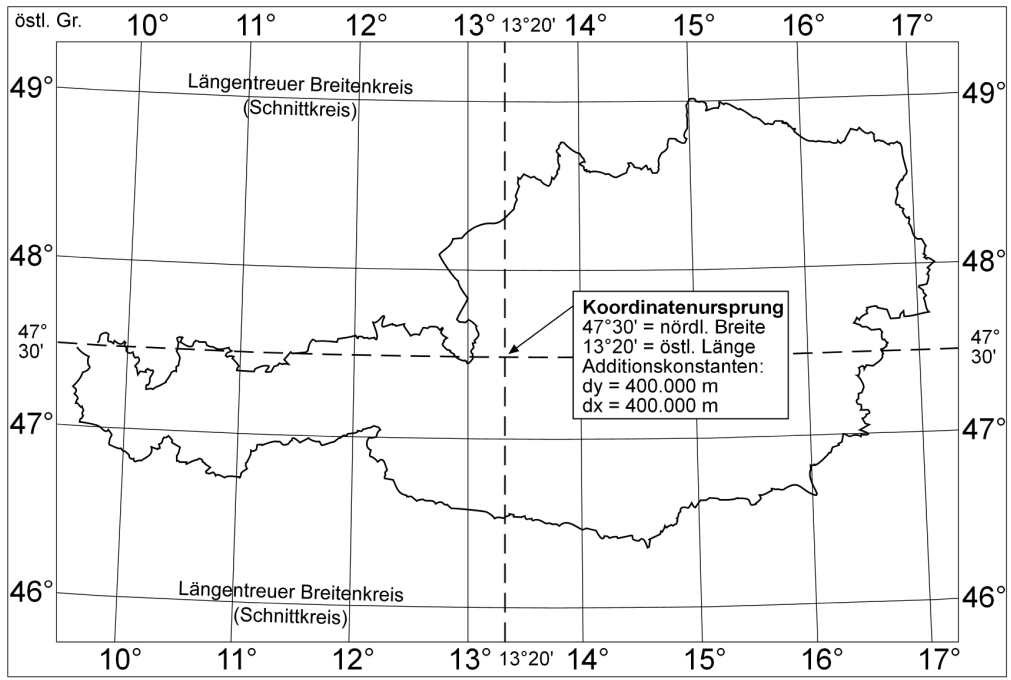
Database extract – Coordinate system (4)

1) RW_LAMB	2) HW_LAMB
560159,63	354660,09
252950	375846,24
470714,89	489486,4
378588,03	433215,74



Lambert conformal conical projection (Map datum: WGS84)

1) Easting
2) Northing



Thank you
for your attention