Austrian Names Data Base (GEONAM)

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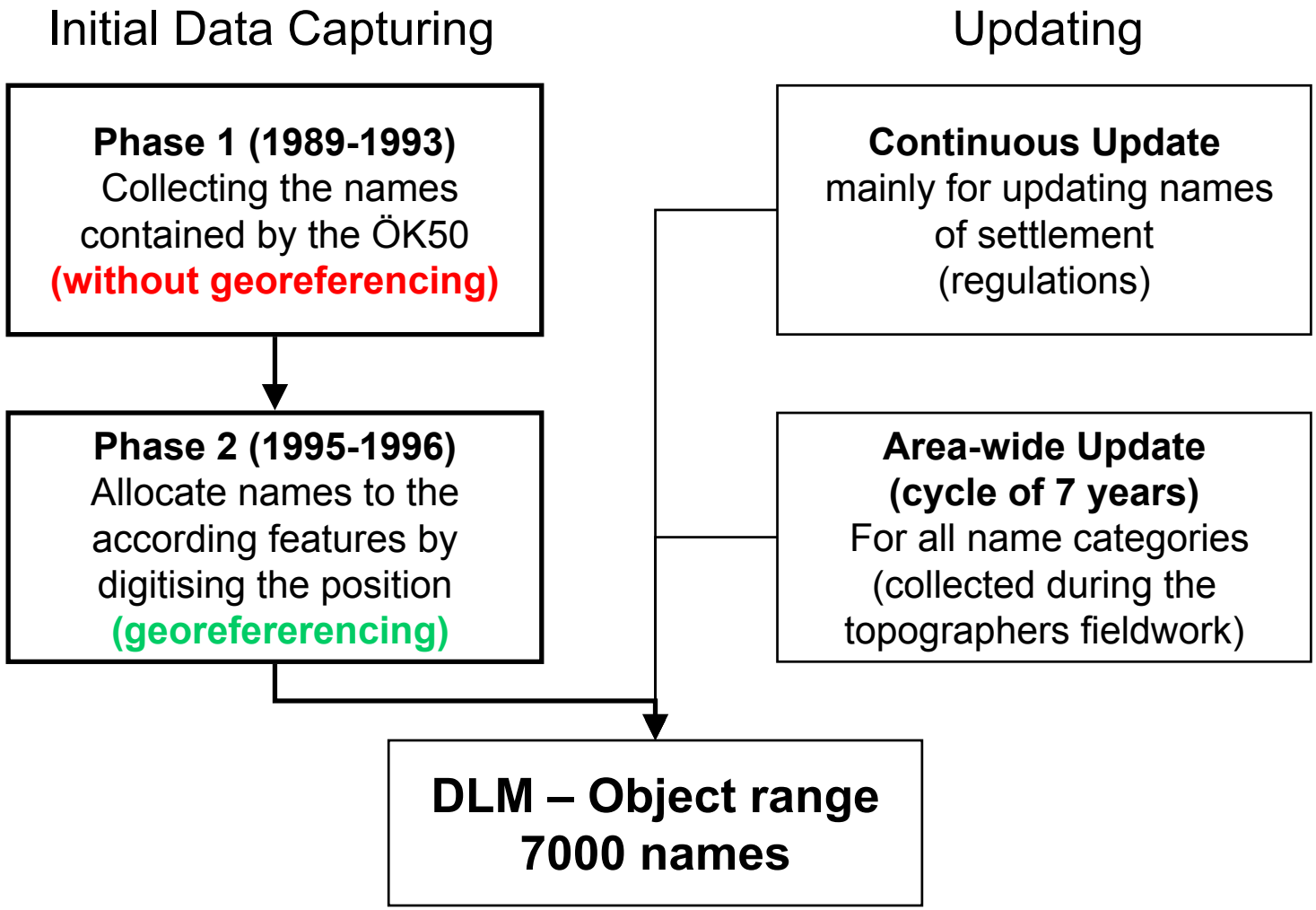
Contents

- Development of the toponymic database GEONAM
- Structure of the data base
- GEONAM as a part of the DLM (Object range names)
- Categories of names
- Application of the toponymic database (example: Austrian Map)

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 to the catalogue of cartographic signatures of the ÖK50)
  - 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

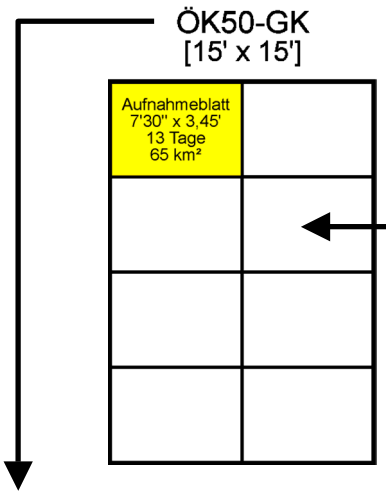
GEONAM (Statistik) Seite 1

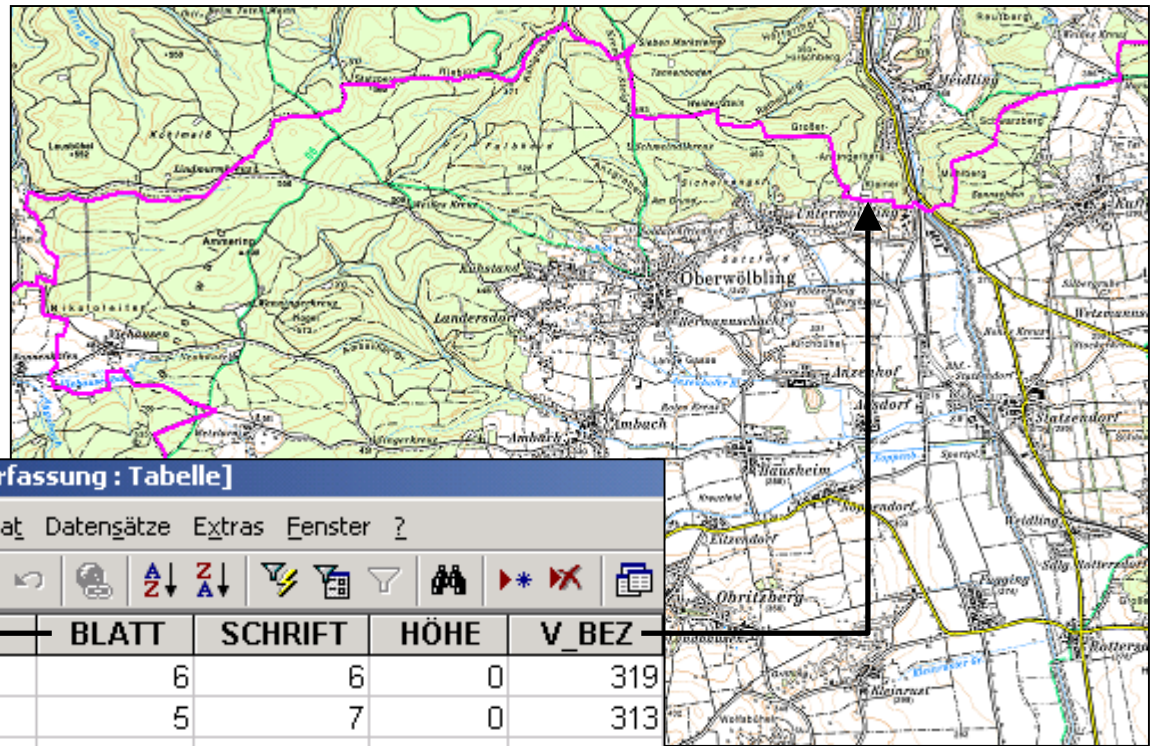
Suchparameter: BDL SCHRIFT HÖHE=3300-3700m

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)

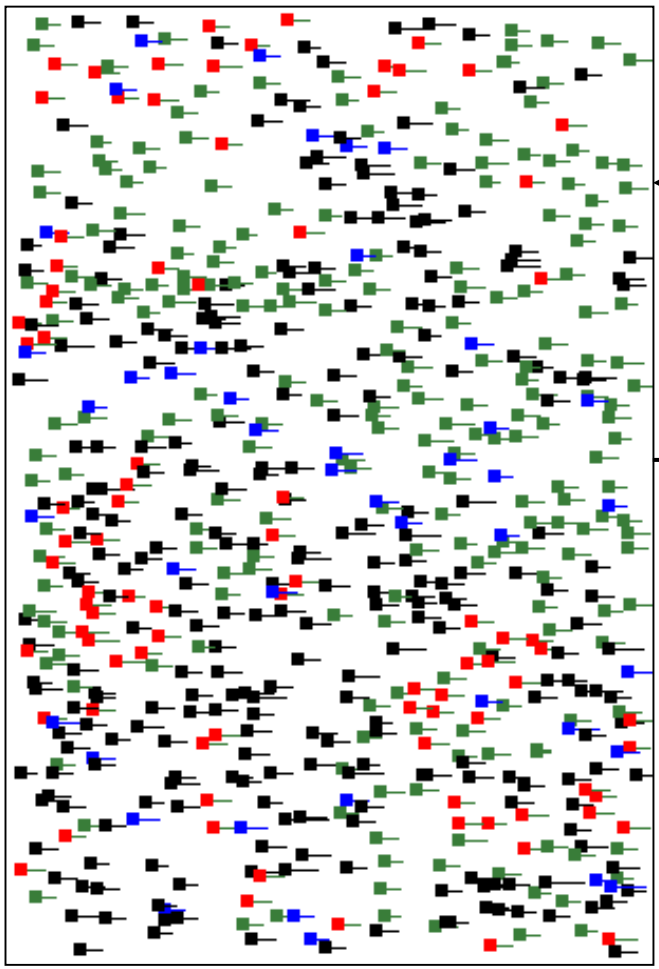
- 1995 –1996: Georeferencing the names in the national coordinate system
- Assigning the name to a feature after defining a suitable feature position, which is done by the topographers using the ÖK25V
  - Church for a populated place (if possible)
  - Highest place for a mountain name
  - Center of the 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 (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

. Parapluiberg/7305(20)/319/0

. *Böckbild/7124(7)/319/0*

. Theyernbach/7504(15)/319/0

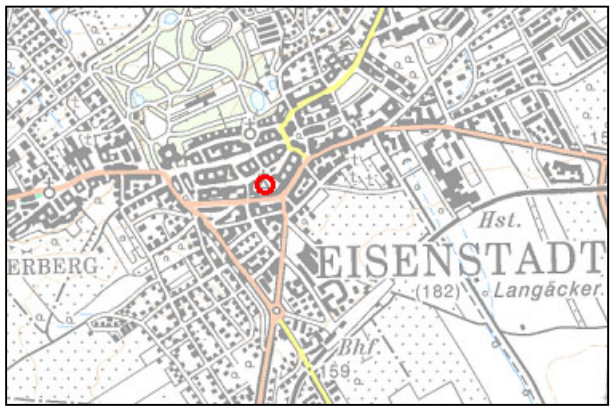
. Galgenleiten/7305(20)/319/0

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

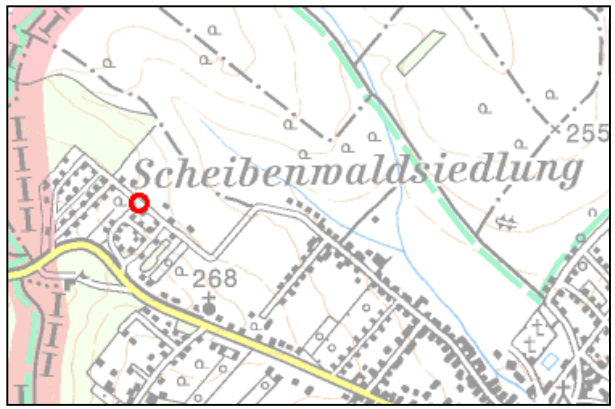
Position – Names of Settlement

Accurate



main church

Less accurate



supposed main crossroad

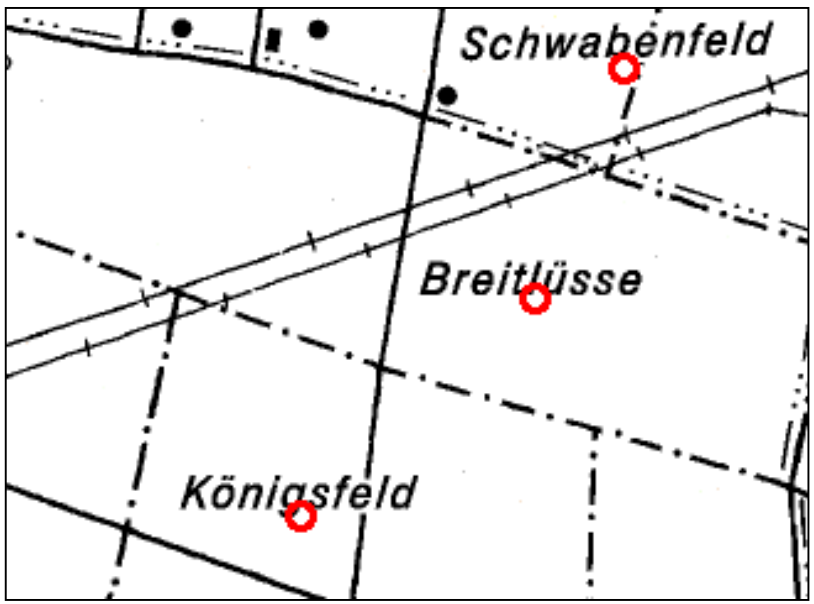
center of object (refuge)

center of the name placement

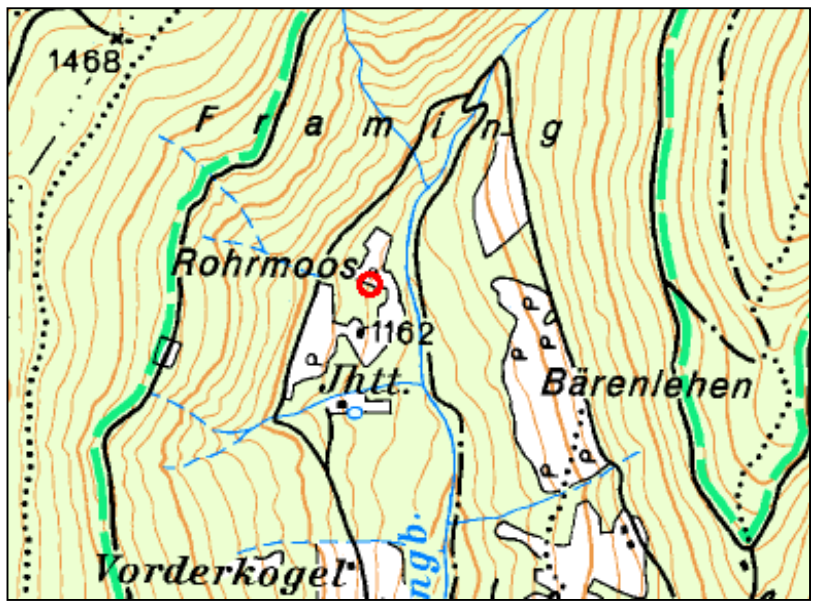
Position – Names of Area

Less accurate

center of the name placement

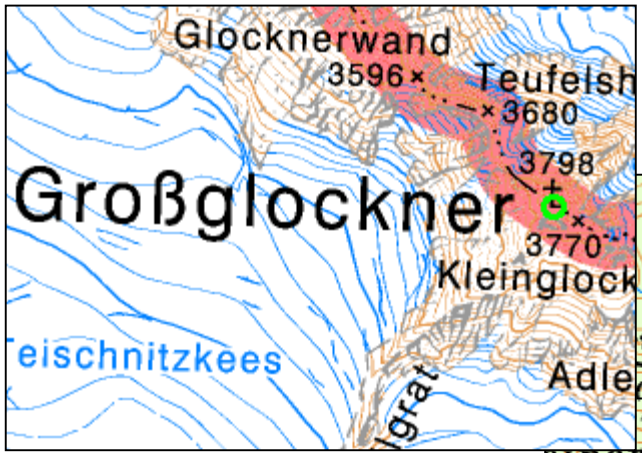


Center of the area



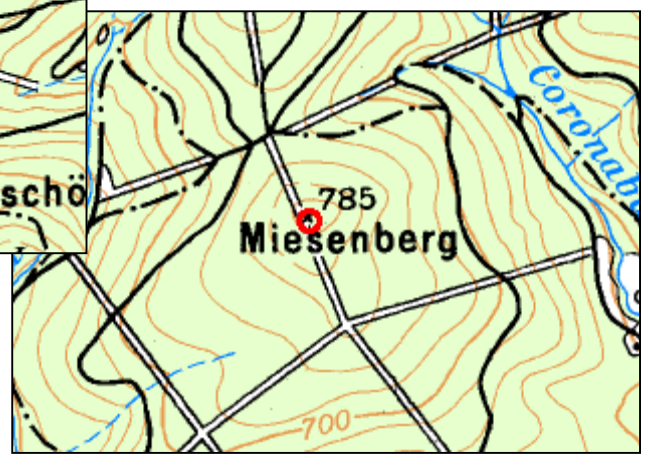
Position – Names of Mountain (accurate)

cross on summit



trigonometric point

spot elevation

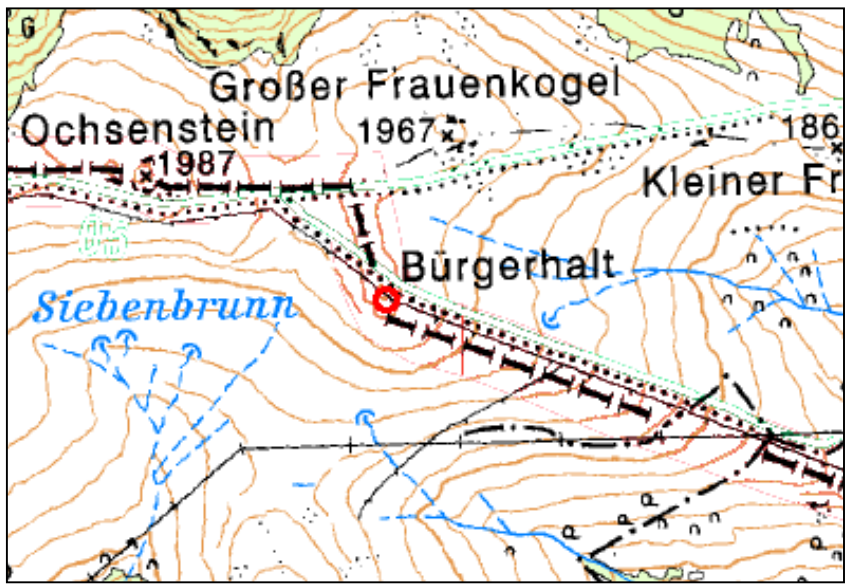


- Cross on summit
- trigonometric point
- spot elevation

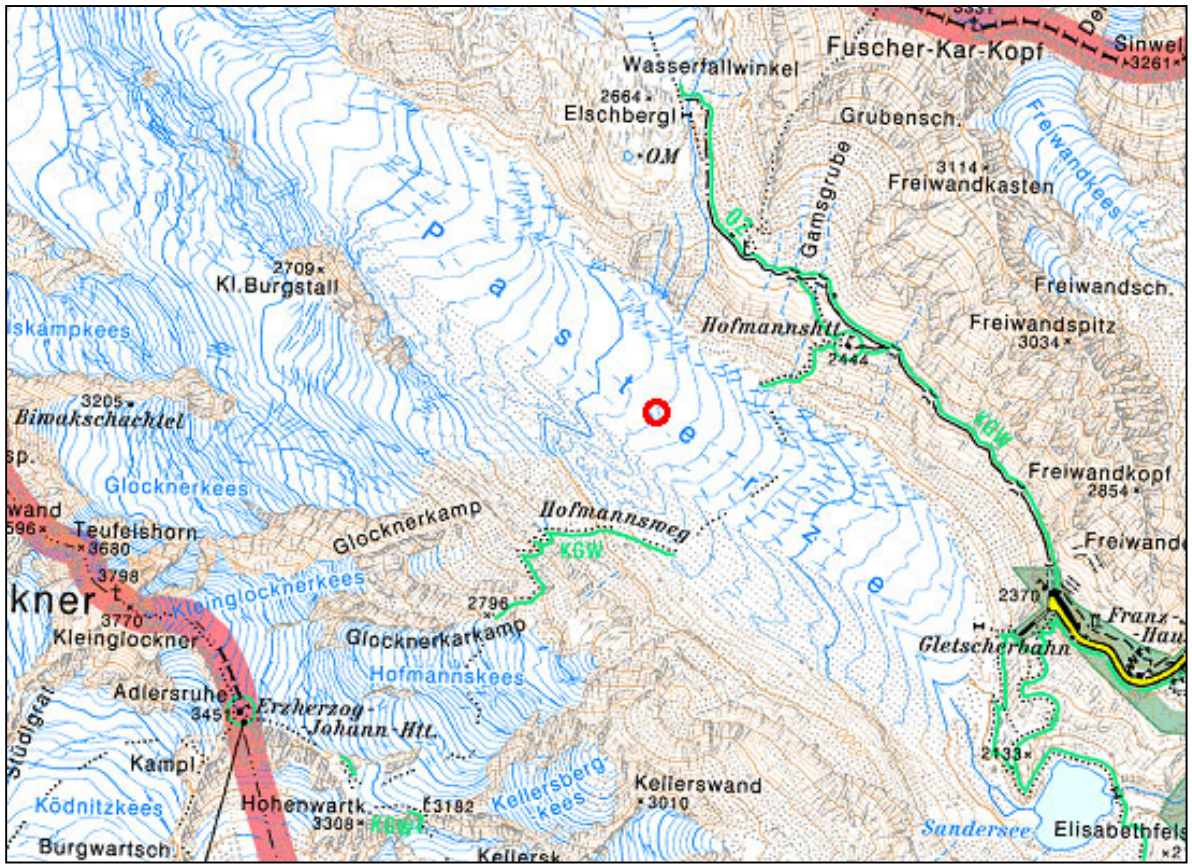
Position – Names of Mountain (less accurate)

center of the name placement

position designed by contour



Position – Names of Glaciers (less accurate)

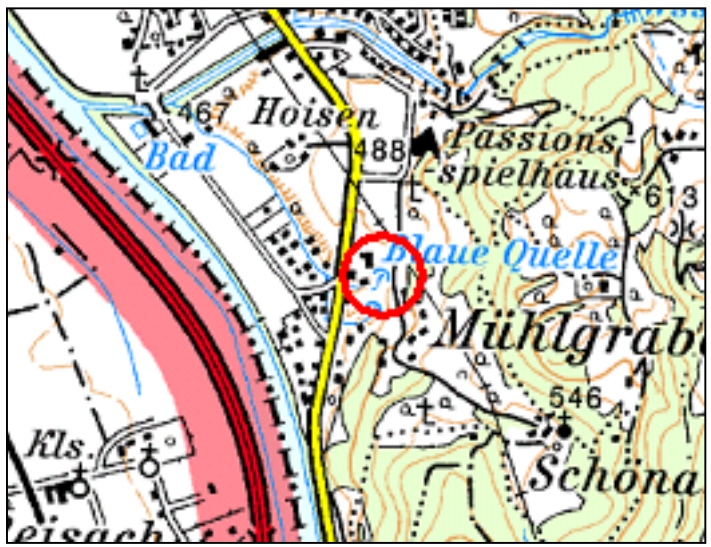


- center of the name placement
- center of the glacier

Position – Names of Hydrography (accurate)

Point features of hydrography
Center of the object

waterfall

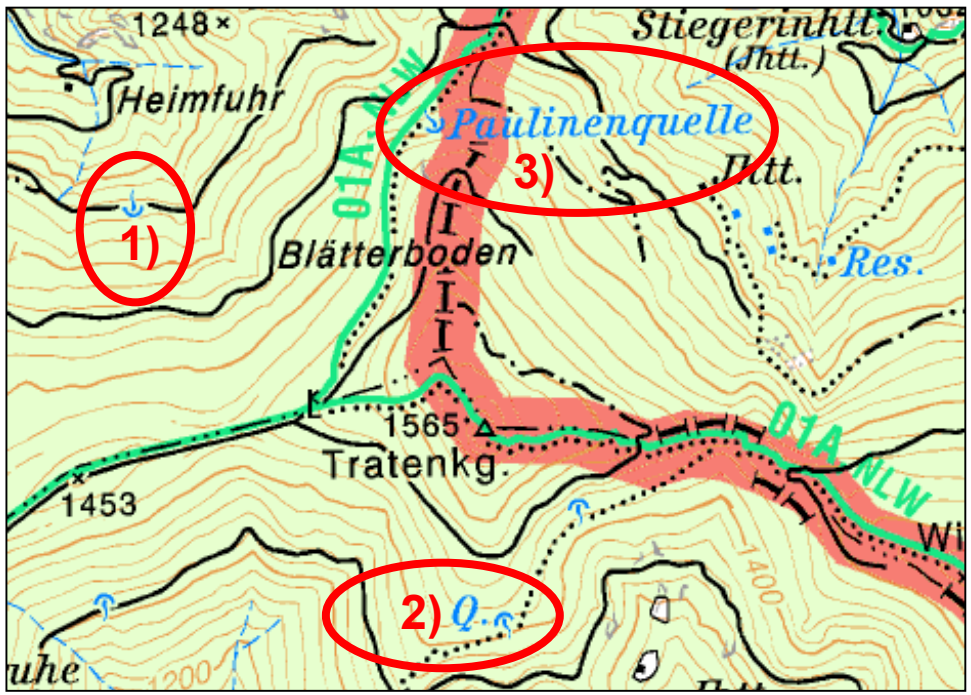


spring

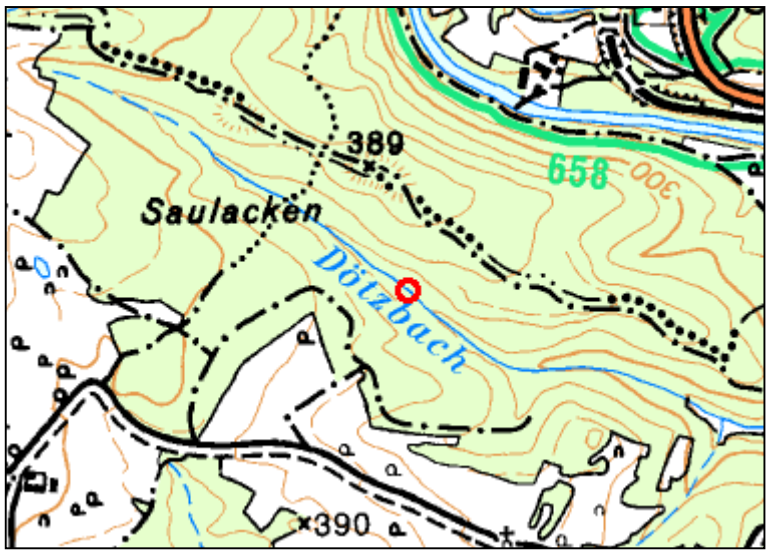
Position – Names of Hydrography (accurate)

Different visualisation of a spring

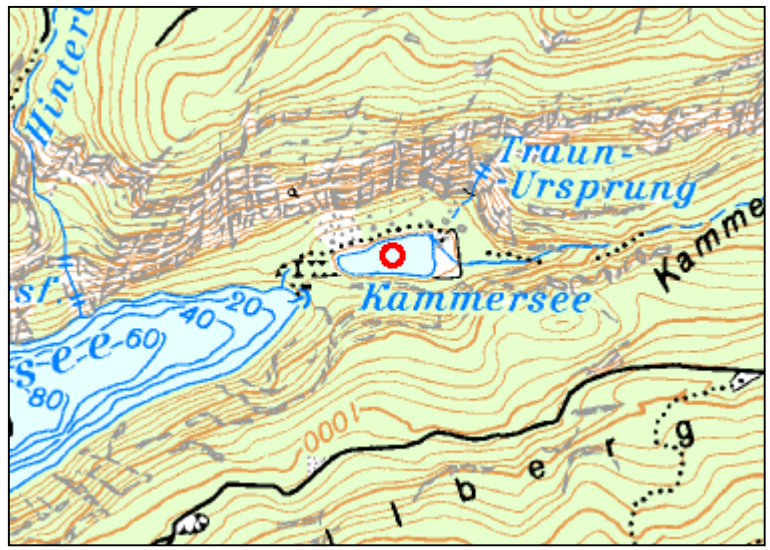
1) Only with the signature (less important)
2) Signature with abbreviation (important)
3) Signature and object name (very important)



Position – Names of Hydrography (less accurate)

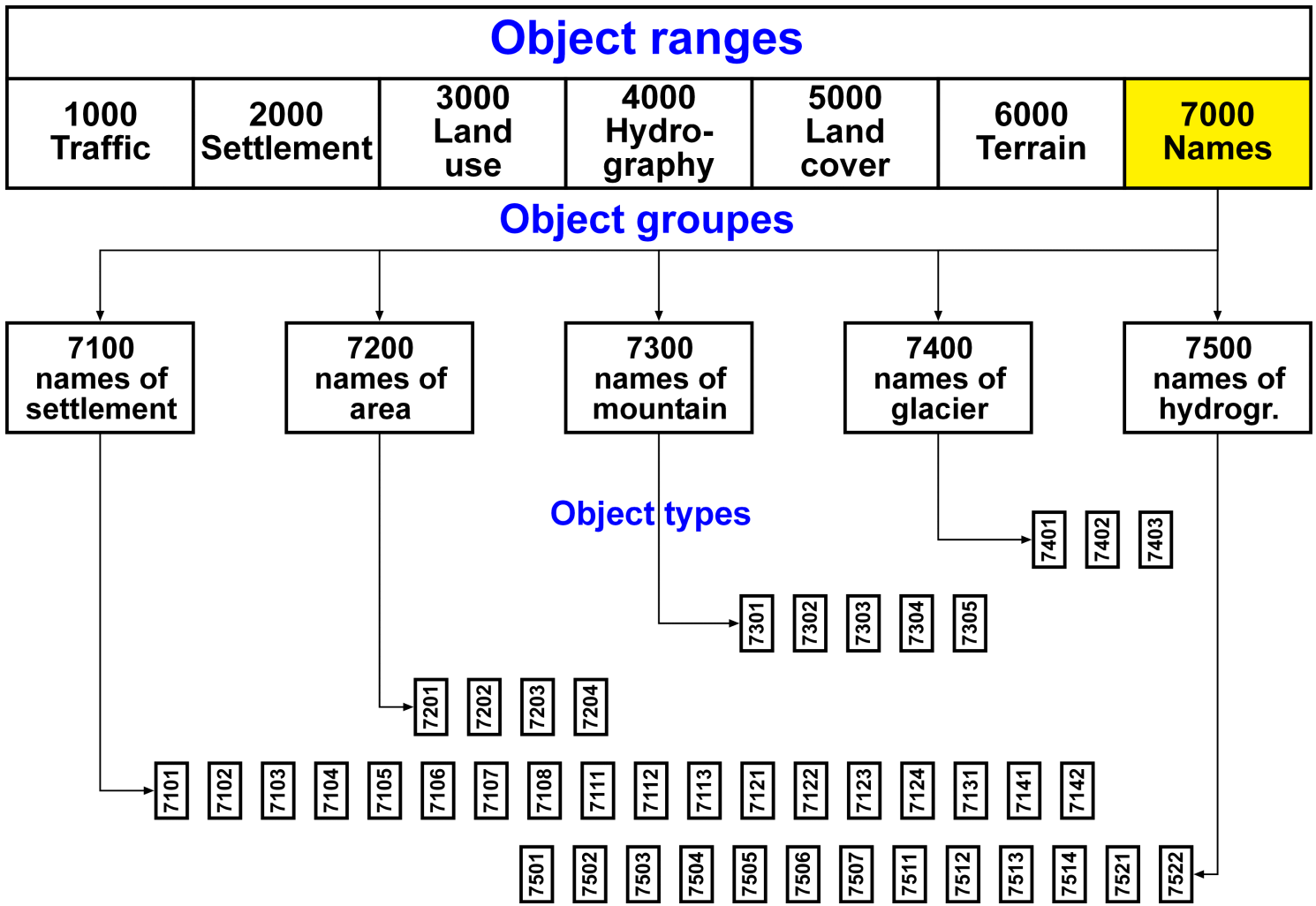


Line features of Hydrography
center of the name placement
on the centerline

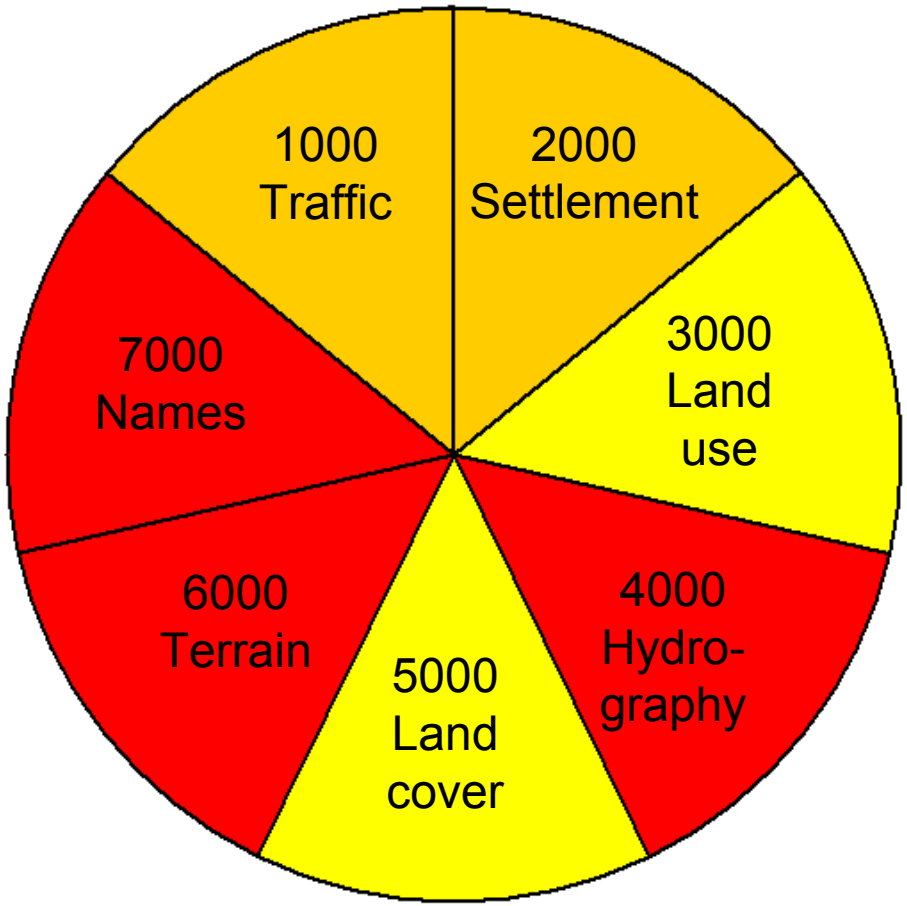


Area features of Hydrography
Center of the lake

Digital Landscape Model (DLM) - Structure



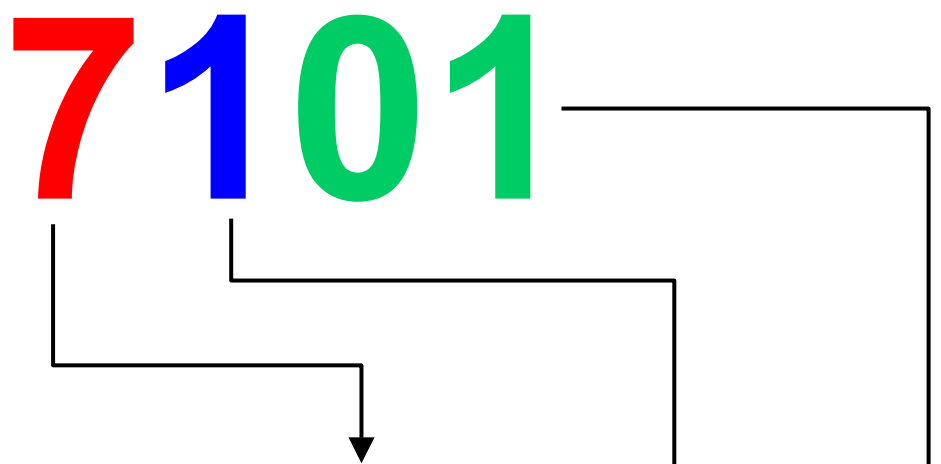
Digital Landscape Model (DLM)
Status of the Initial Data Capturing



status of
initial data capturing

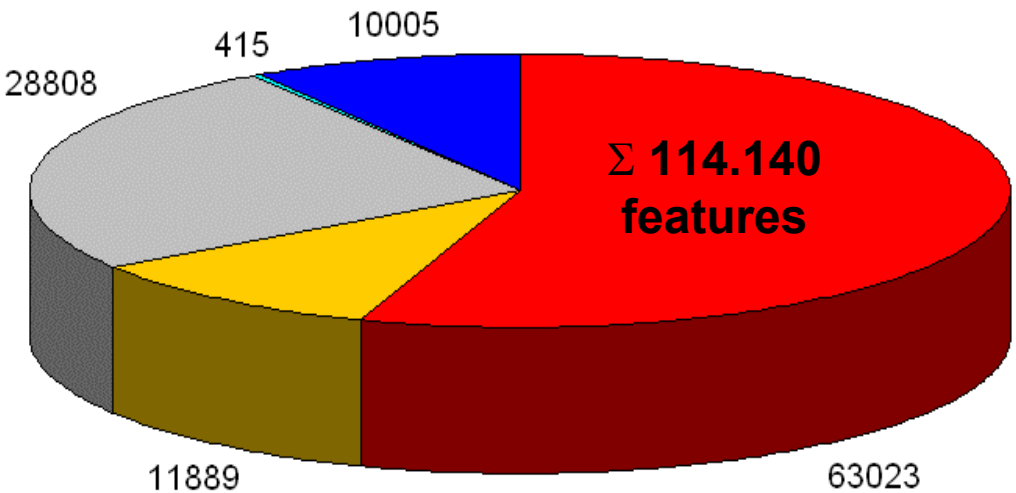
- starting
- partially completed
- completed

Structure of the feature key



- 1 Object range (names)
- 5 Object groupes (names of settlement)
- 43 Object types (city > 100.000 inhabitants)

Quantity Structure of Geographic Names

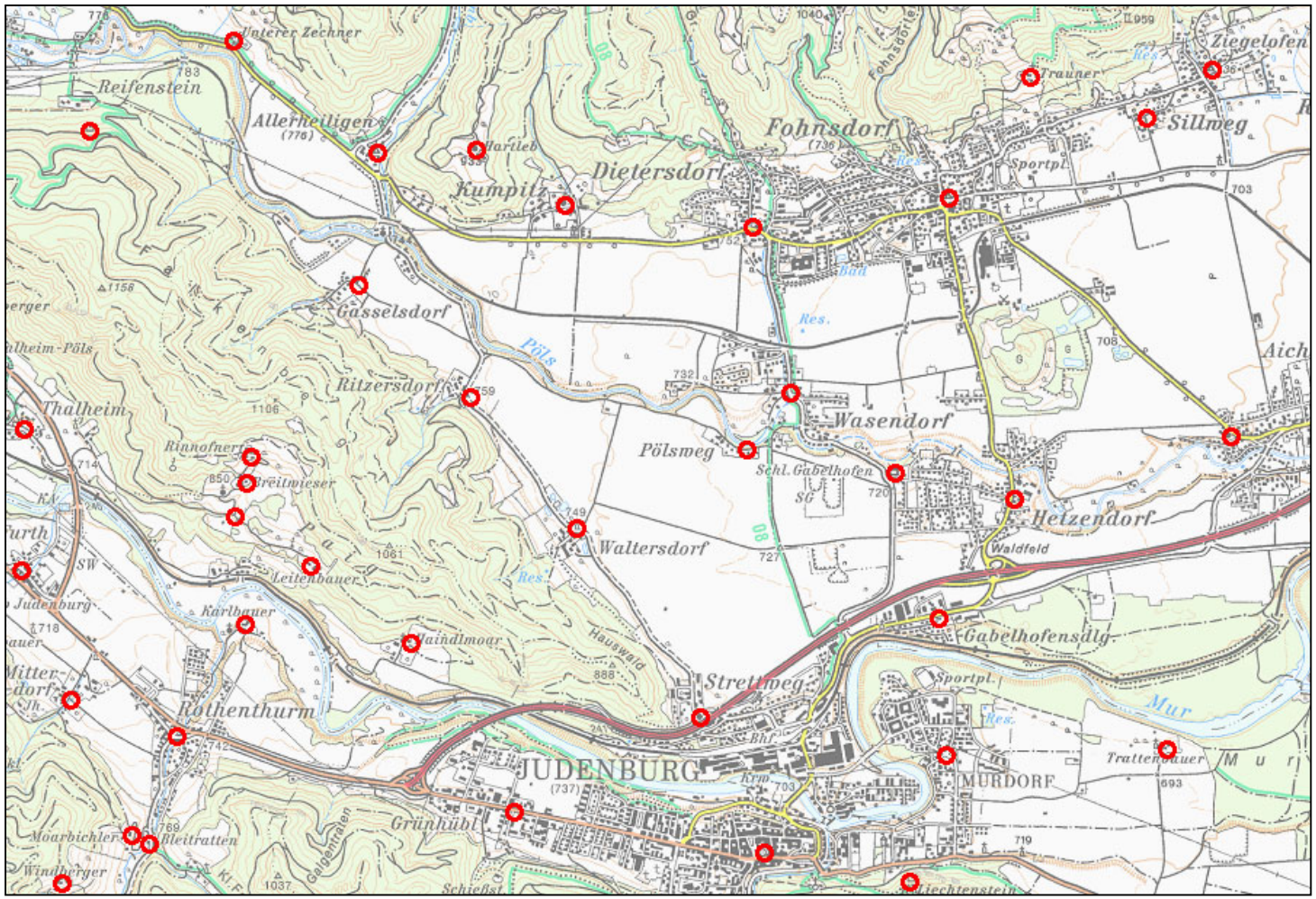


1) Names of settlement (18)
2) Other geographic names
   - Names of area (4)
   - Names of mountains (5)
   - Names of glacier (3)
   - Names of hydrography (13)

7100 names of settlement (Object types)

- 7101 city (> 100.000 inhabitants)
- 7102 city (50.000 – 100.000 inhabitants)
- 7103 city (10.000 – 50.000 inhabitants)
- 7104 city (2.000 – 10.000 inhabitants)
- 7105 city (< 2.000 inhabitants)
- 7106 city (large quarter of city)
- 7107 city (medium quarter of city)
- 7108 city (small quarter of city)
- 7111 market town (> 10.000 inhabitants)
- 7112 market town (2.000 – 10.000 inhabitants)
- 7113 market town (< 2.000 inhabitants)
- 7121 village (> 2.000 inhabitants)
- 7122 village (300 - 2.000 inhabitants)
- 7123 village (< 300 inhabitants)
- 7124 isolated building and farmstead
- 7131 object of historic importance
- 7141 object with non-German orthography
- 7142 name of district and name of municipality

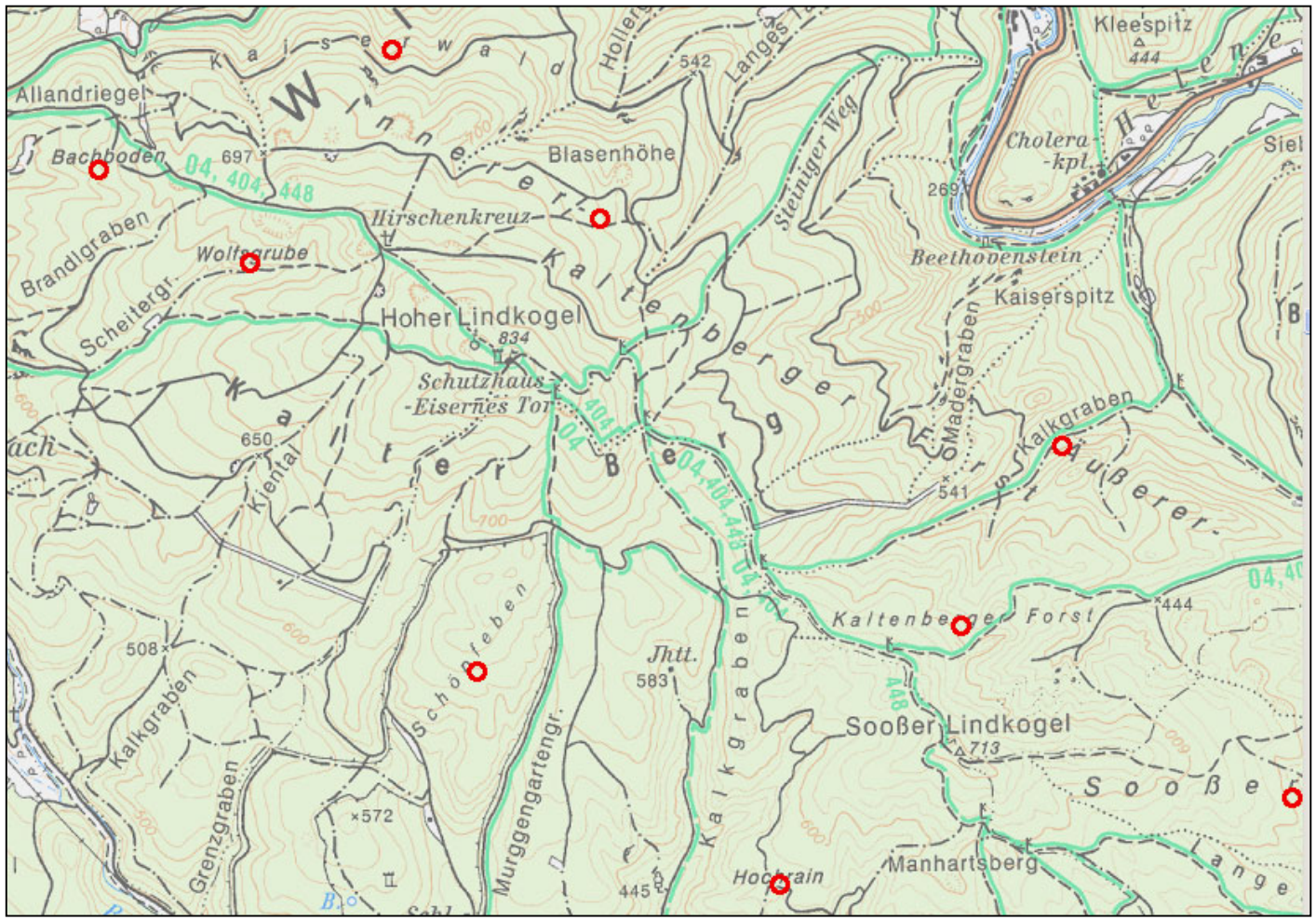
7100 names of settlement (example of reference points)



7200 names of area (Object types)

- 7201 area (> 10km extension)
- 7202 area (5 - 10km extension)
- 7203 area (2 - 5km extension)
- 7204 area (< 2km extension)

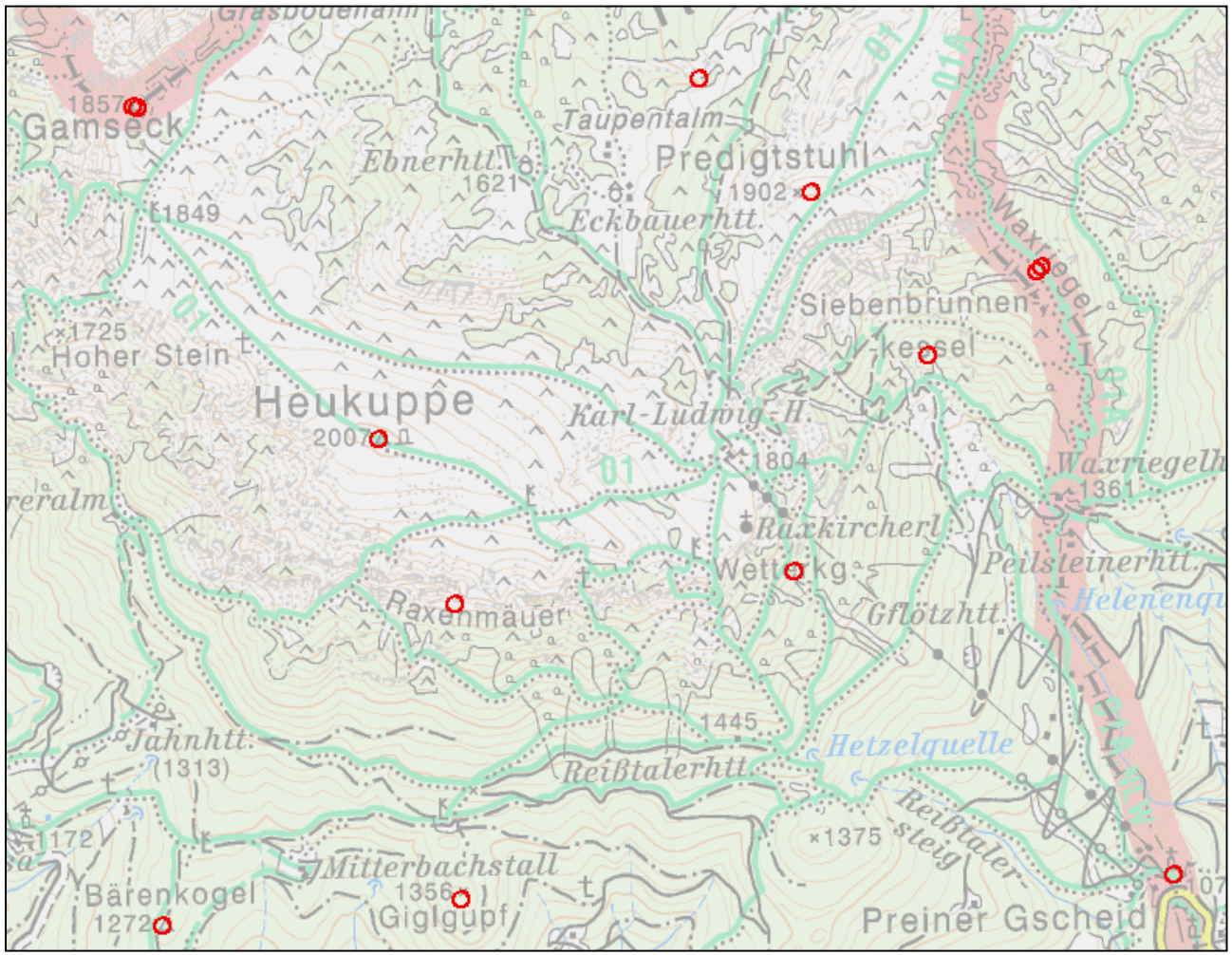
7200 names of area (example of reference points)



7300 names of mountain (Object types)

- 7301 mountains, valley (> 30km length)
- 7302 mountains, valley (< 30km length)
- 7303 mountain, valley (important)
- 7304 mountain, valley (less important)
- 7305 mountain, valley (local important)

7300 names of mountain (example of reference points)



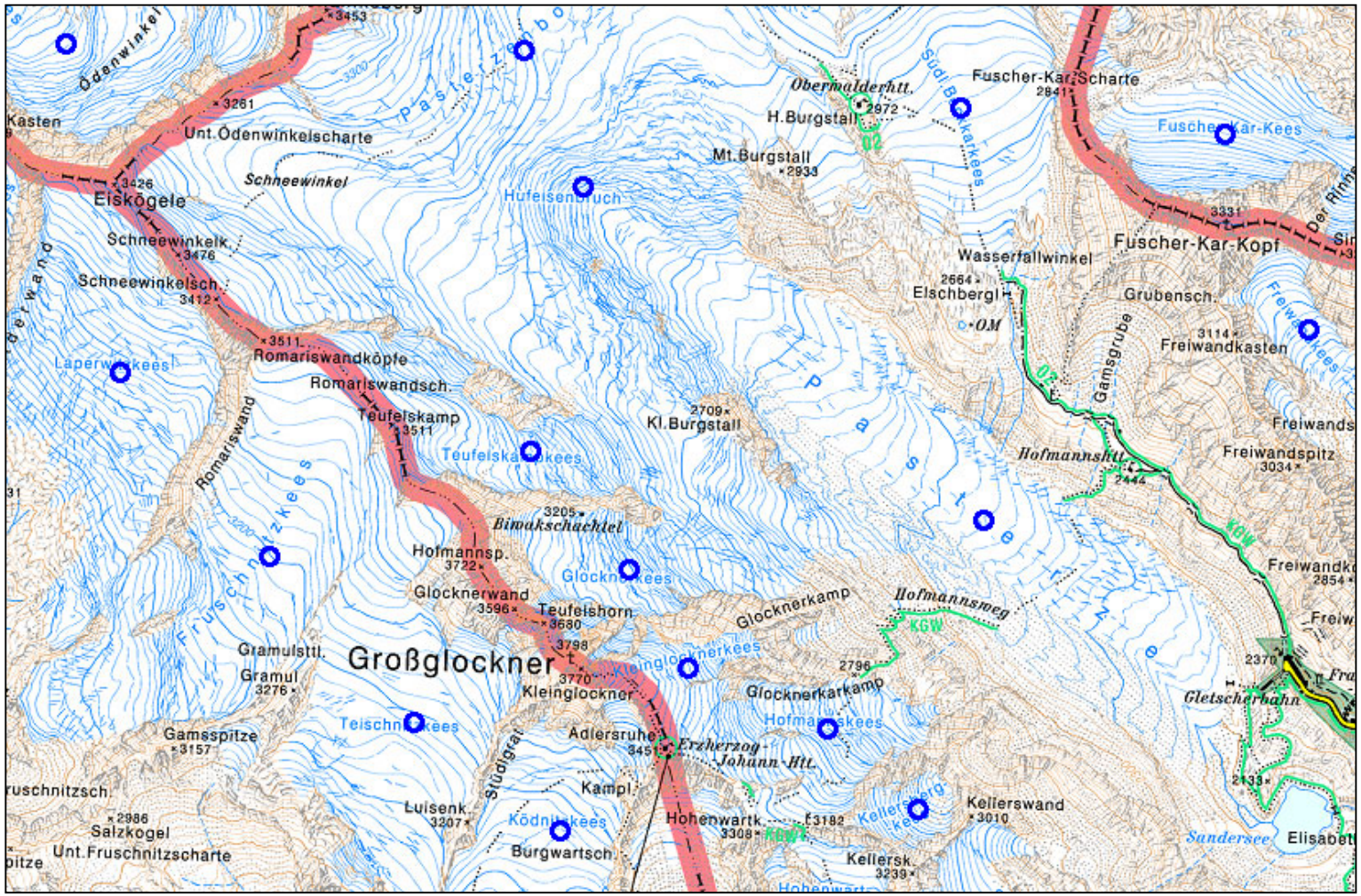
7400 names of glacier (Object types)

- 7401 glacier (> 6km length)

- 7402 glacier (2 - 6km length)

- 7403 glacier (< 2km length)

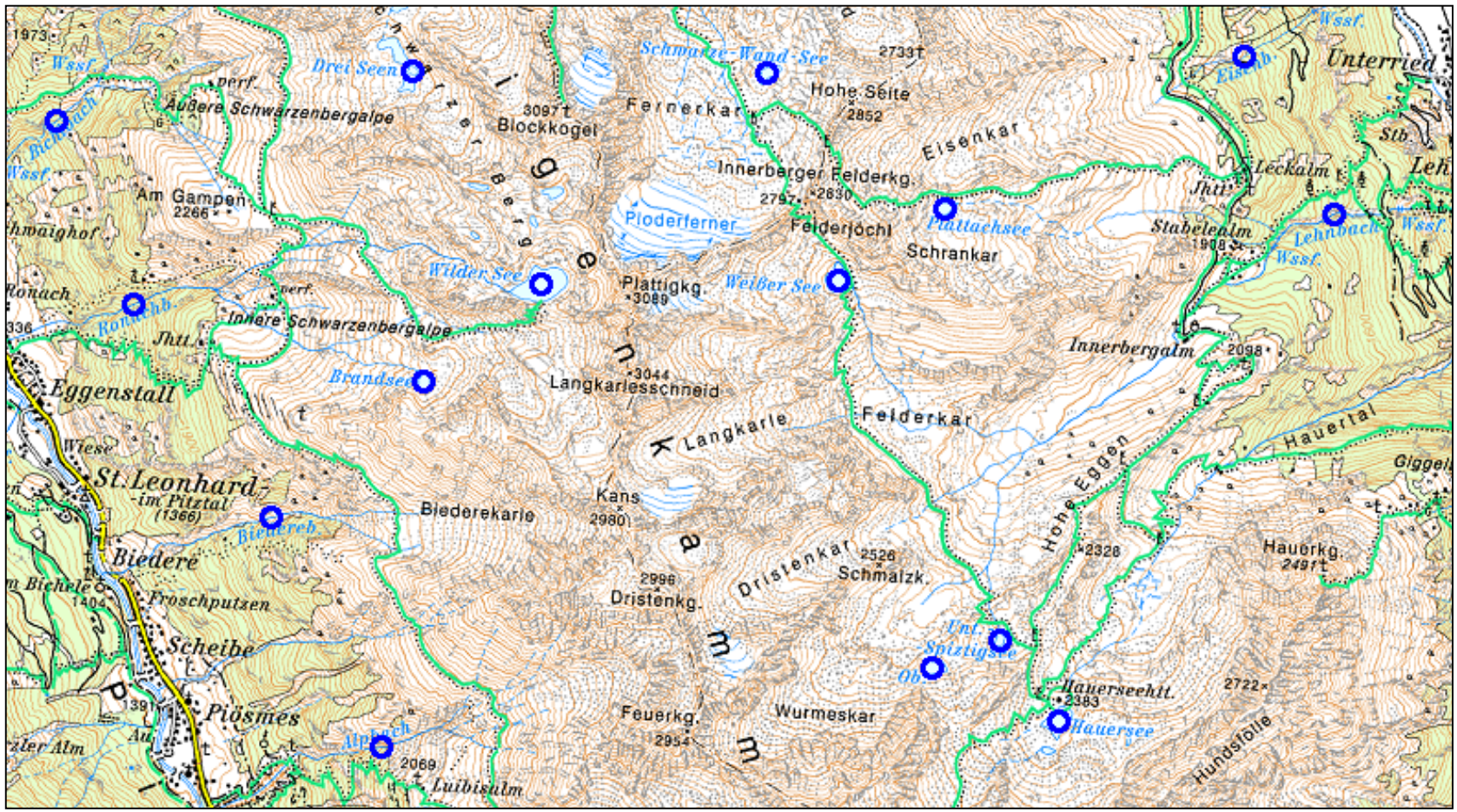
7400 names of glacier (example of reference points)



7500 names of hydrography (Object types)

- 7501 river (> 300km length)
- 7502 river (50 - 300km length)
- 7503 river, brook (10 - 50km length)
- 7504 brook (< 10km length)
- 7505 spring
- 7506 waterfall
- 7507 well
- 7511 lake (> 10 km extension)
- 7512 lake (4 - 10 km extension)
- 7513 lake (2 - 4km extension)
- 7514 lake, pond (< 2 km extension)
- 7521 other hydrographic object (less important)
- 7522 other hydrographic object (important)

7500 names of hydrography (example of reference points)



Database extract (attributes)

1)	2)	3)	4)	5)	6)	7)
F_CODE	NAME	VW_BEZ	ÖK50	UTM50	HÖHE	ERFASS
7101	Graz	601	164	4229	363	31
7101	Innsbruck	701	118	2223	574	31
7101	Linz	401	32	4319	266	31
7101	Salzburg	501	63	3210	425	31

1) **Feature Code: (7101 > Object range, Object groupe, Object typ)**
2) **Geographic Name:**
   a) Names of settlement: in official notation (acc. STATISTIK AUSTRIA)
   b) Other geographic names: as customary in a place
3) **Administrative District:** code with three-numeric-characters
4) **ÖK50:** Map sheet number in the division of the ÖK50-BMN (old map)
5) **UTM50:** Map sheet number in the division of ÖK50-UTM (new map)
6) **Height:** sea level in meter
   a) Usually the topographic earth
   b) Main entrance is relevant
7) **Data capture type:** 31 > Digitising the KM50

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)

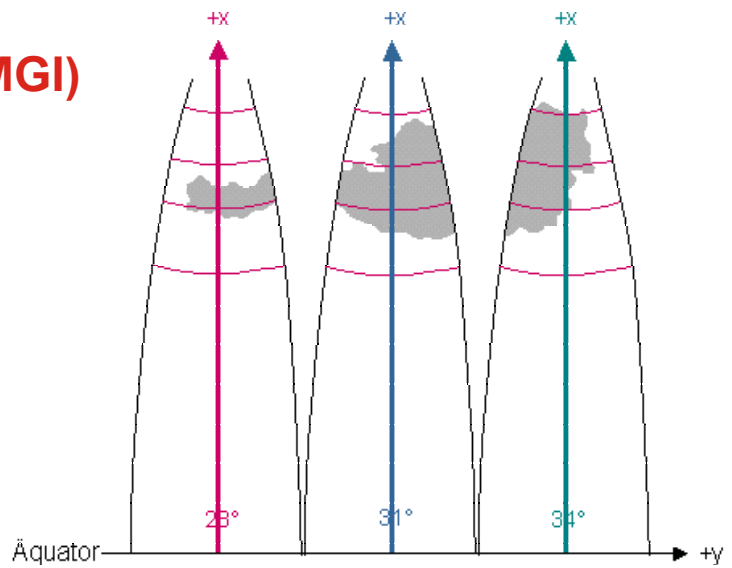
RW_LAMB	HW_LAMB
560159,63	354660,09
252950	375846,24
470714,89	489486,4
378588,03	433215,74

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)
4) **Geographic longitude**
5) **Geographic latitude**

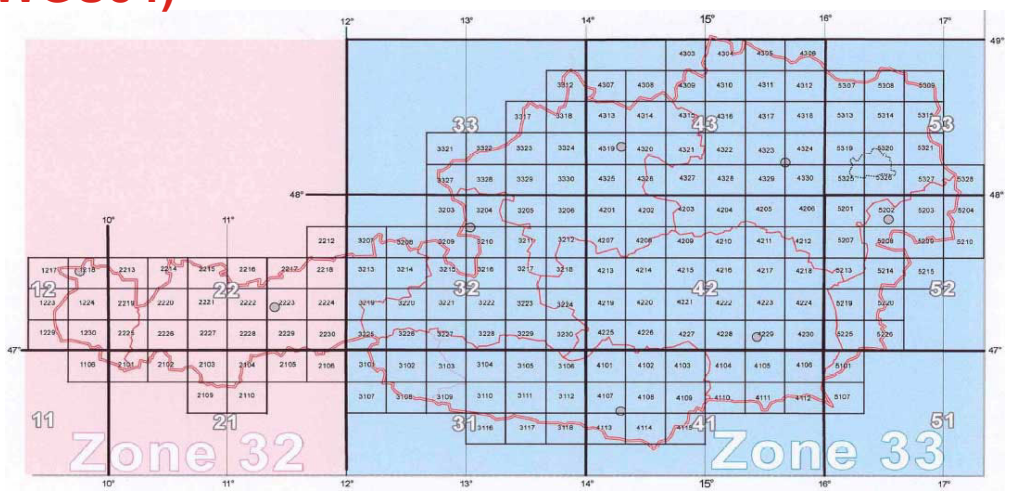


Database extract – Coordinate system (3)

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

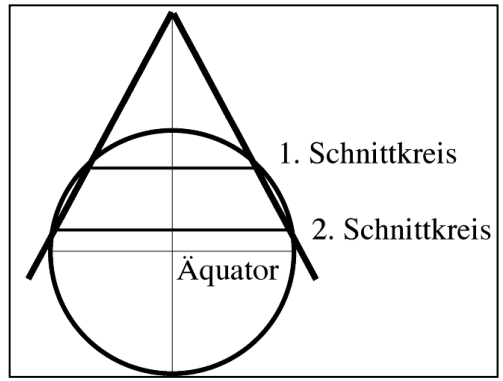
UTM-Projection (Map datum: WGS84)

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



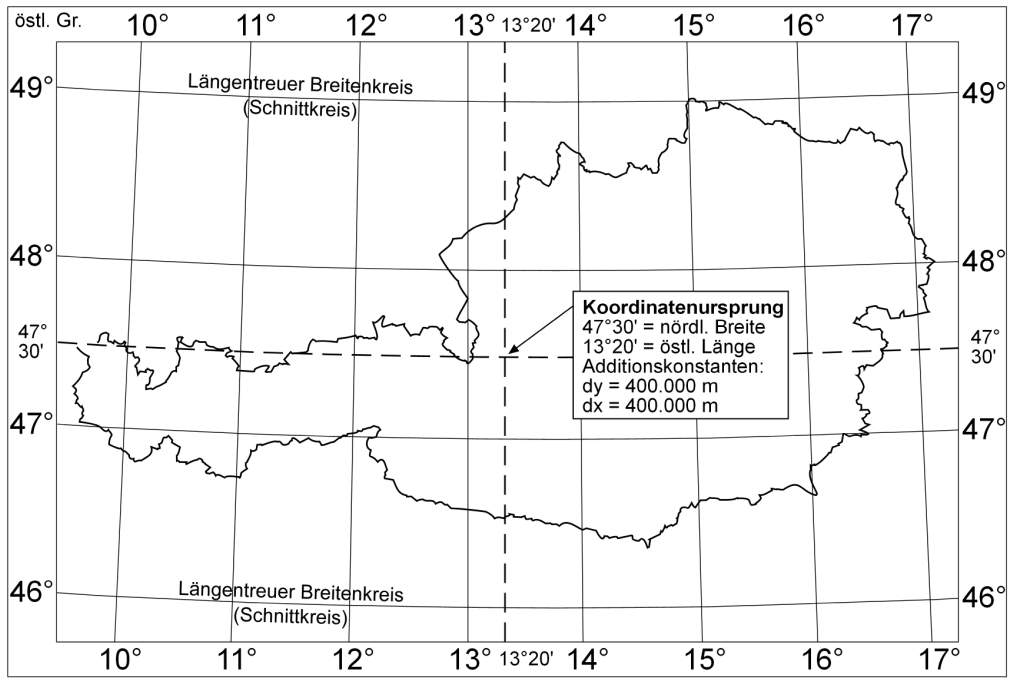
Database extract – Coordinate system (4)

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



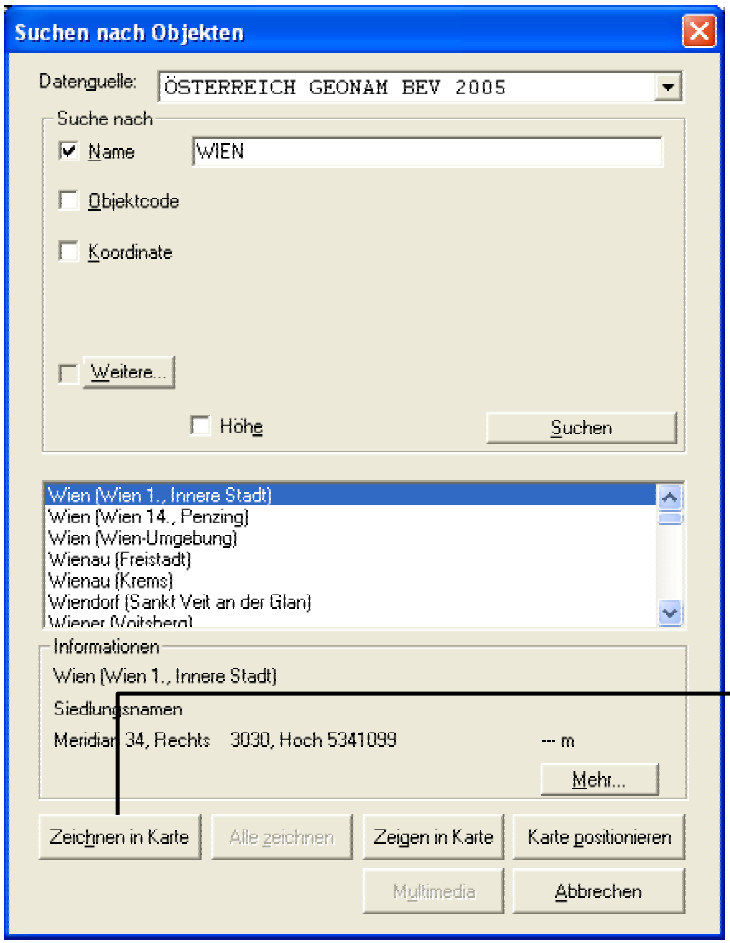
Database extract (time relation)

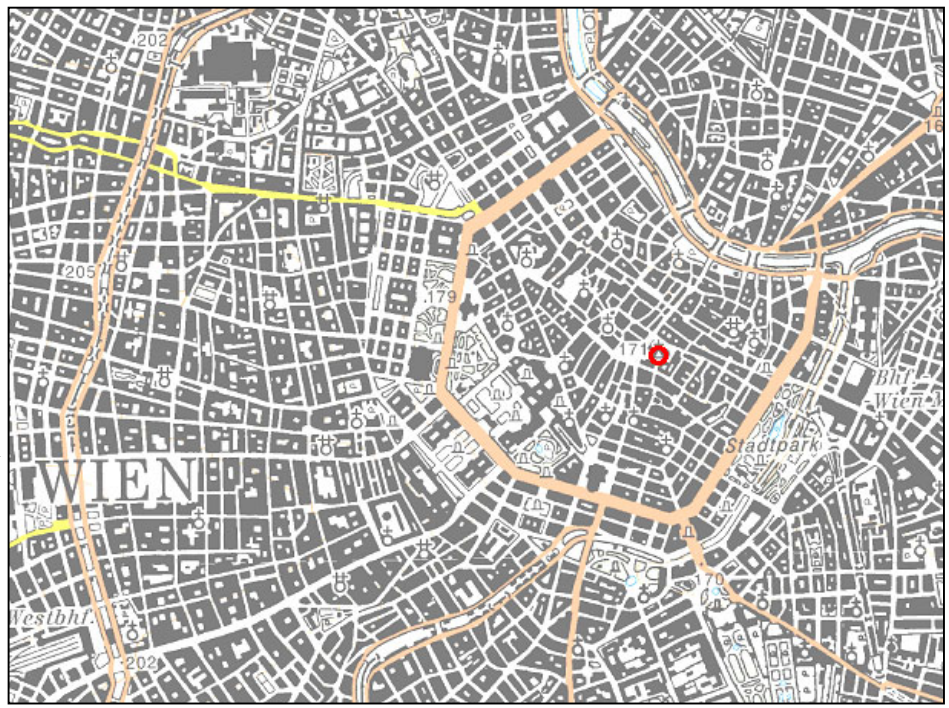
1) AKTUAL_DATUM	2) BEARB_DATUM
01.07.1998 12:00:00	01.01.1996 12:00:00
01.07.1997 12:00:00	05.05.1998 12:00:00
01.07.2001 12:00:00	26.02.2003 12:00:00
01.01.1996 12:00:00	01.01.1996 12:00:00

1) time of data capturing

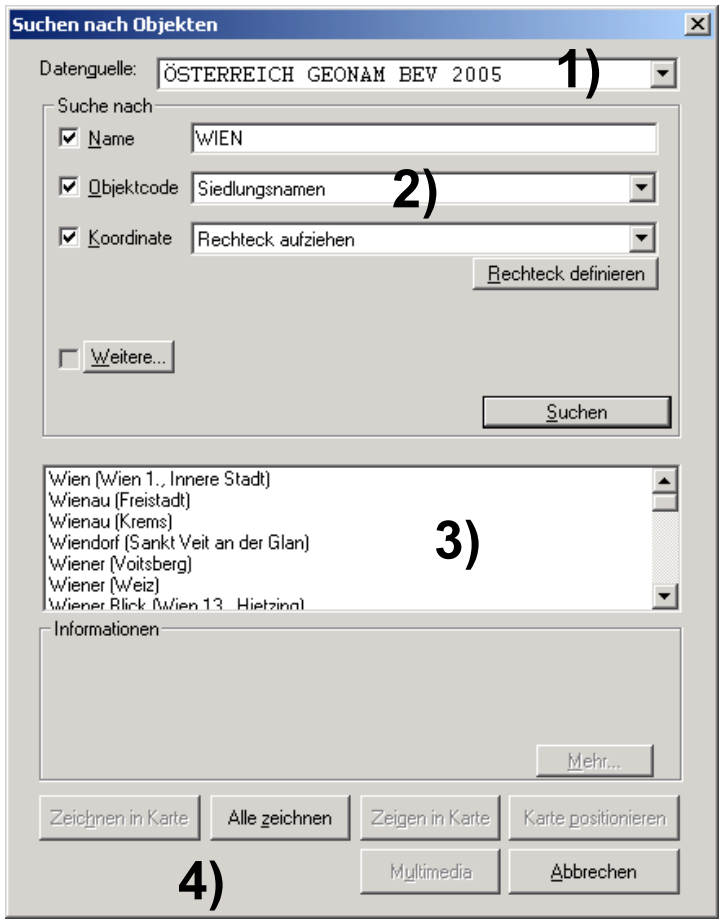
2) time of editing (updating) the database

Application for names – AMap (1)





Application for names – AMap (2)



1) Data source:

GEONAM (Object range 7000 Namen)

2) Possibilities for searching names:

- Geographic name
- Select one of the 5 object groups
- Define a specific area
  - drawing a rectangle
  - centroid with extension

3) Selecting of names:

One, some or all names of the list

4) Displaying of names:

- center the map to the selected name
- show the position of the name
- draw a signature at the position of the name

Thank you
for your attention