



TopPlus technology

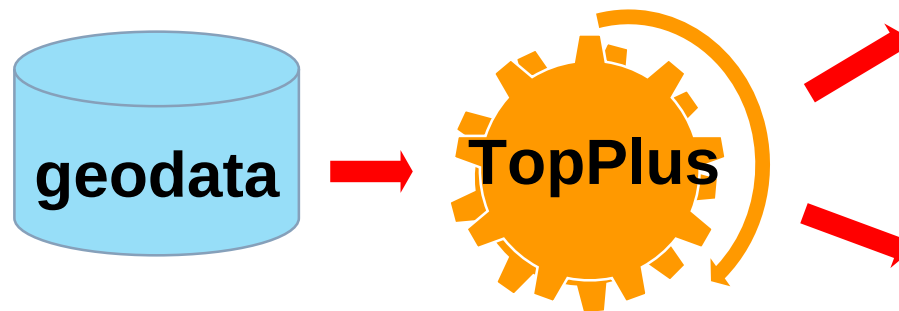
Integration of Open Street Map data

Content

- What is the TopPlus technology?
- TopPlus products
- Software and workflow
- Benefits
- Outlook

What is the TopPlus technology?

- Harmonisation of different source data and transformation into a homogenous database schema
- TopPlus creates maps in many scales from the data



What is the TopPlus technology?

Requests for maps and presentation graphics

- UEFA Euro 2012 and 2016
- G8 summit 2007 Heiligendamm, G7 summit 2015 Elmau
- Pope's visit 2011
- Castor transports
- Cross-border customs investigation
- US president's visit 2016 in Hannover
- G20 summit 2017 in Hamburg

TopPlus Products

Two different web map product lines

■ TopPlusOpen

- Combination of OSM and other open data
- Three display areas
 - World (Natural Earth)
 - Europe (OSM + EGM)
 - Germany + parts of neighbouring countries
- Available for everybody

■ TopPlus

- Combination of OSM, official open data and official licensed data
- European coverage
- Available for licensed customers from the federal administration

TopPlus (Open)

Google projection, earth

circumference: GRS80 ellipsoid

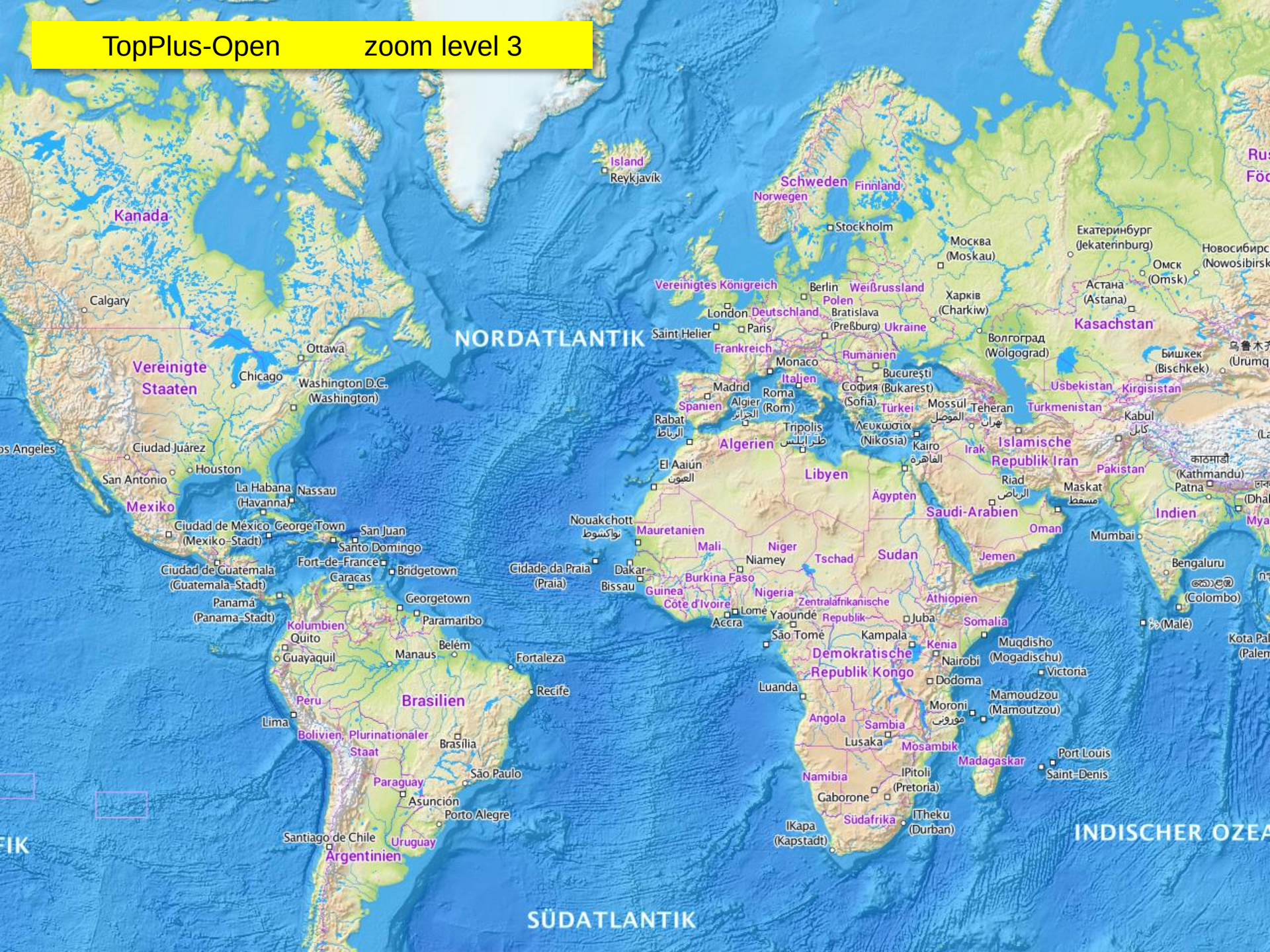
zoom level	number of tiles	natural distance per tile in meters	resolution m/px	scale denominator
0	1	40075016,69	156543,03	559.082.264
1	4	20037508,34	78271,52	279.541.132
2	16	10018754,17	39135,76	139.770.566
3	64	5009377,09	19567,88	69.885.283
4	256	2504688,54	9783,94	34.942.642
5	1.024	1252344,27	4891,97	17.471.321
6	4.096	626172,14	2445,98	8.735.660
7	16.384	313086,07	1222,99	4.367.830
8	65.536	156543,03	611,50	2.183.915
9	262.144	78271,52	305,75	1.091.958
10	1.048.576	39135,76	152,87	545.979
11	4.194.304	19567,88	76,44	272.989
12	16.777.216	9783,94	38,22	136.495
13	67.108.864	4891,97	19,11	68.247
14	268.435.456	2445,98	9,55	34.124
15	1.073.741.824	1222,99	4,78	17.062
16	4.294.967.296	611,50	2,39	8.531
17	17.179.869.184	305,75	1,19	4.265
18	68.719.476.736	152,87	0,60	2.133





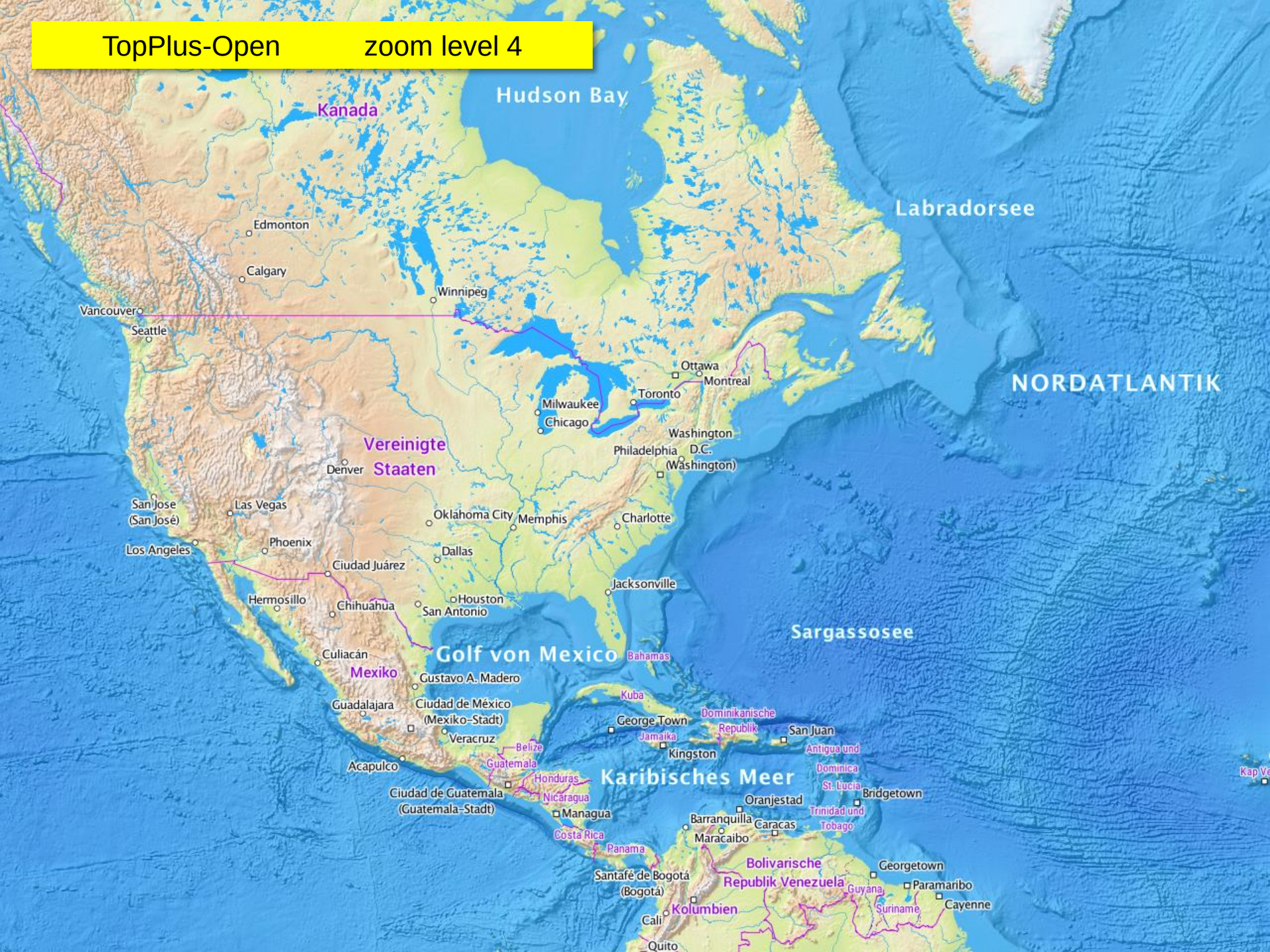
TopPlus-Open

zoom level 3



TopPlus-Open

zoom level 4



zoom level 5



zoom level 6

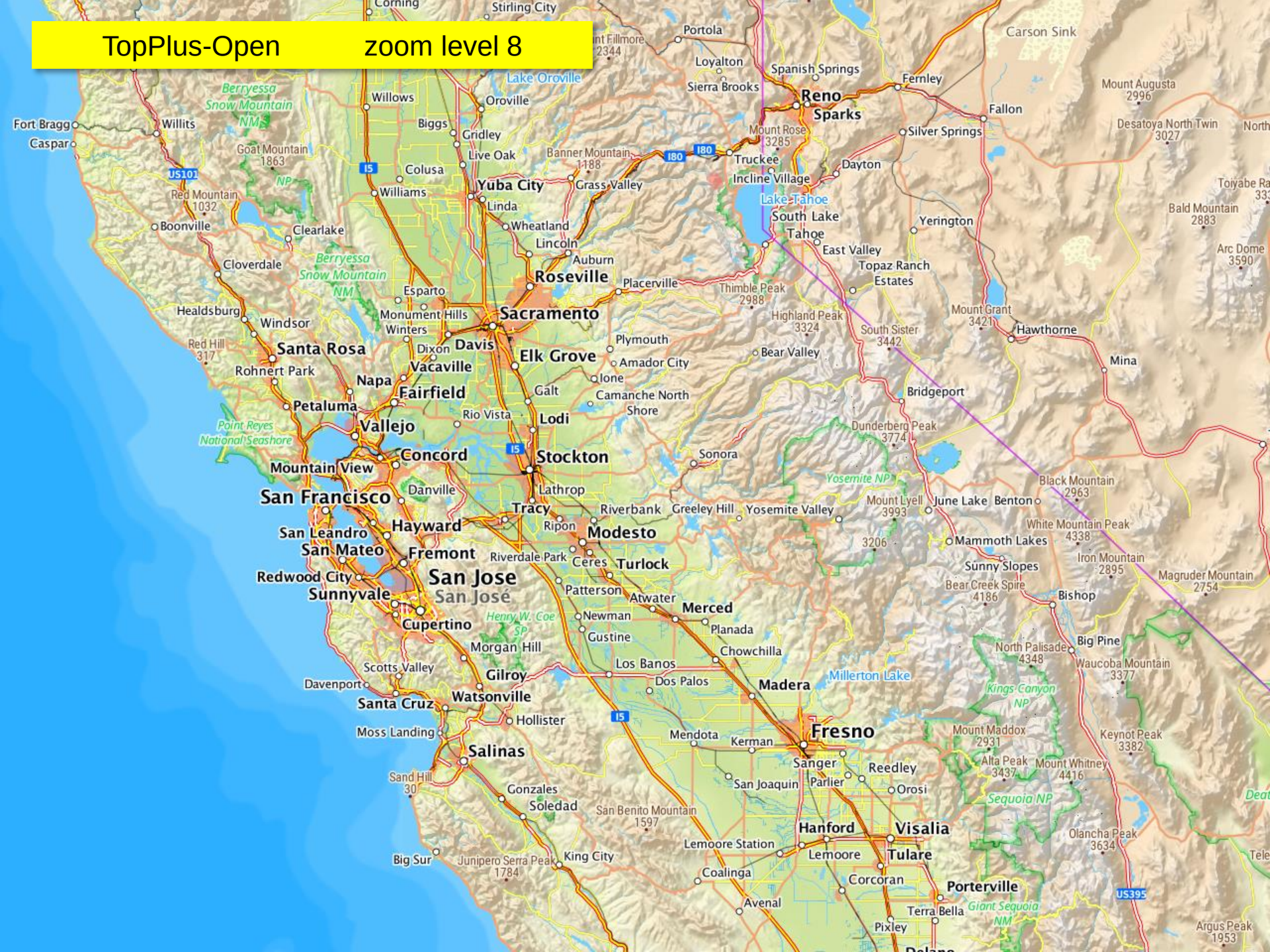
TopPlus-Open

zoom level 7



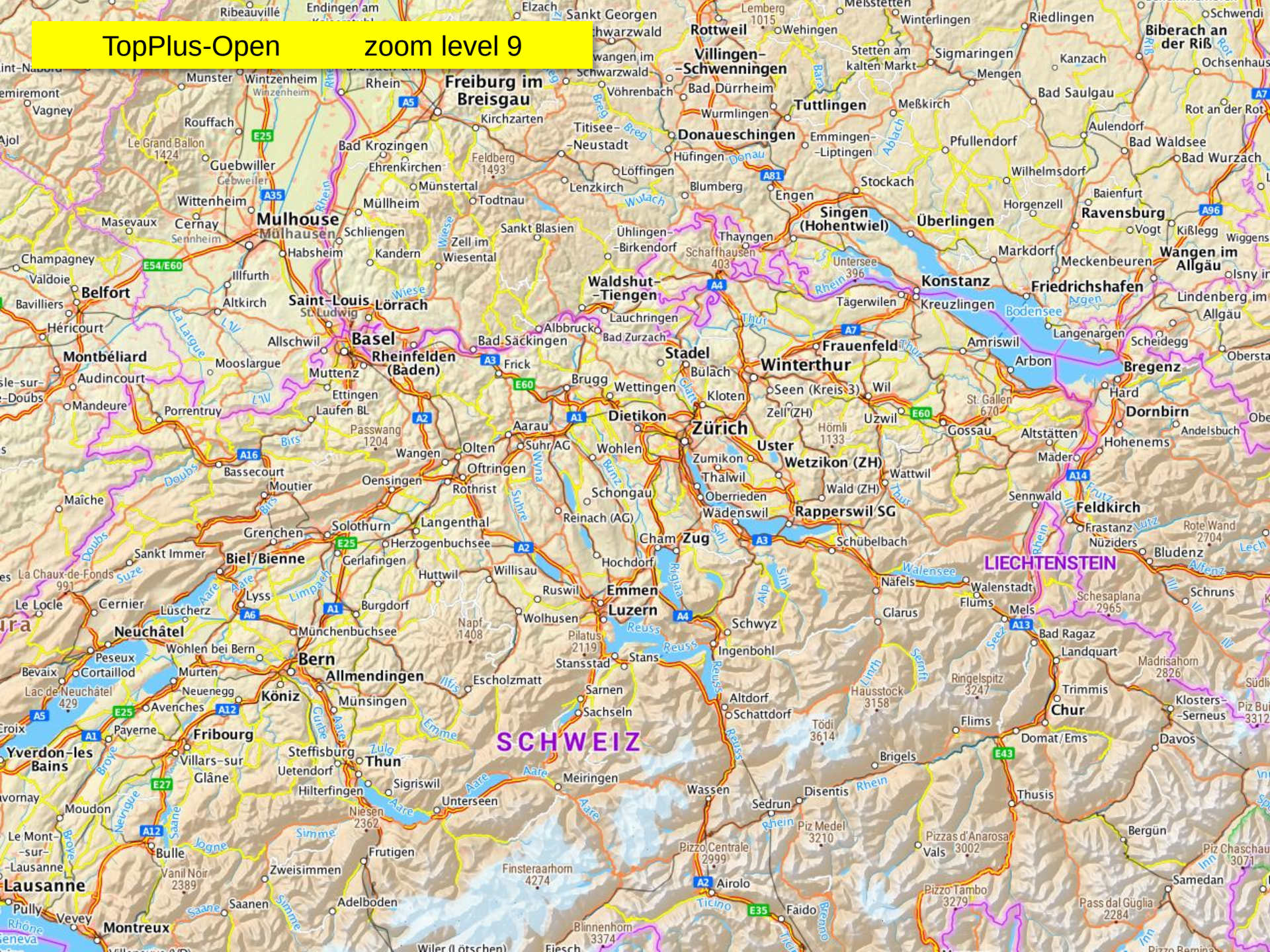
TopPlus-Open

zoom level 8



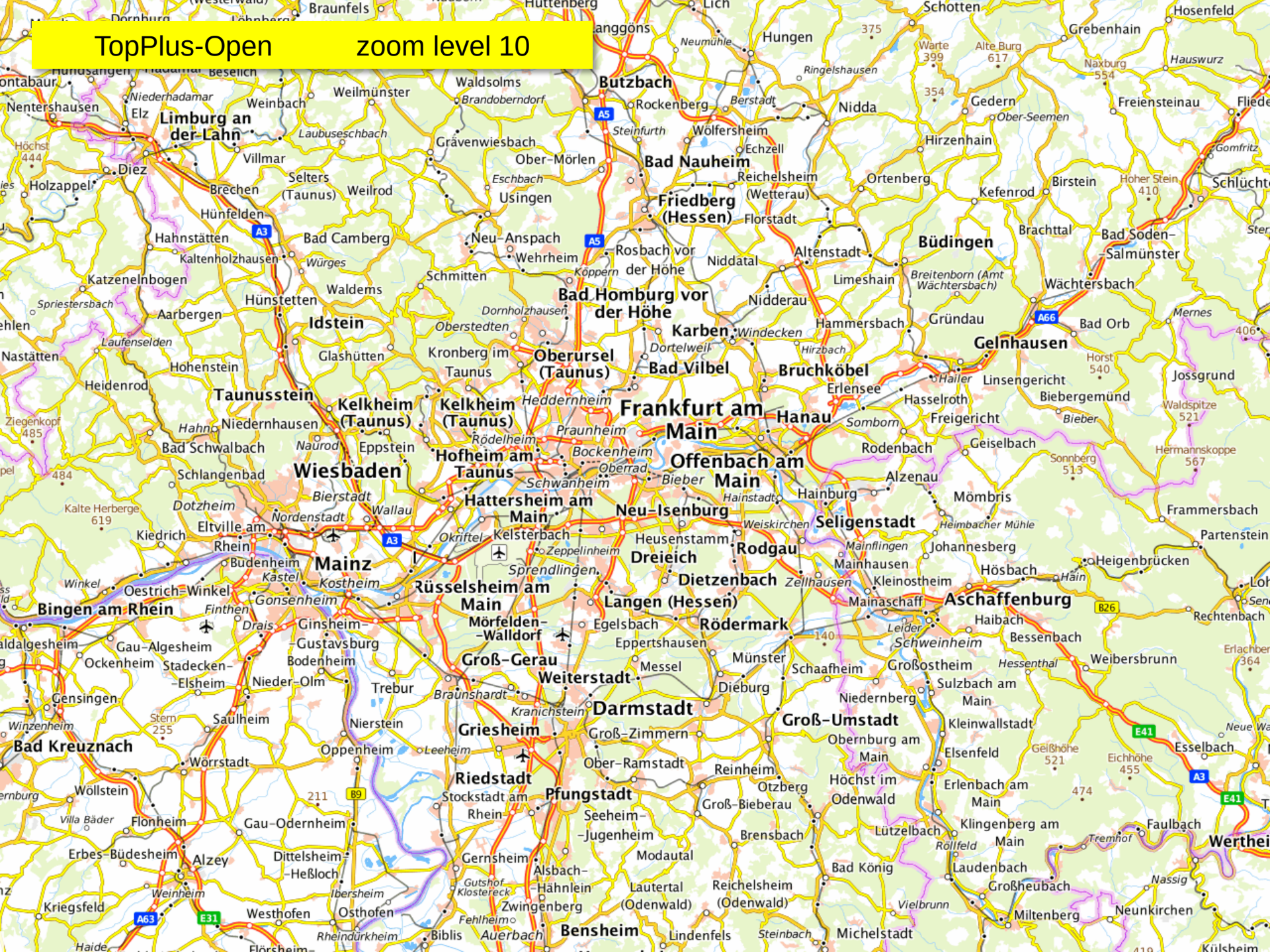
TopPlus-Open

zoom level 9



TopPlus-Open

zoom level 10



TopPlus-Open

zoom level 11



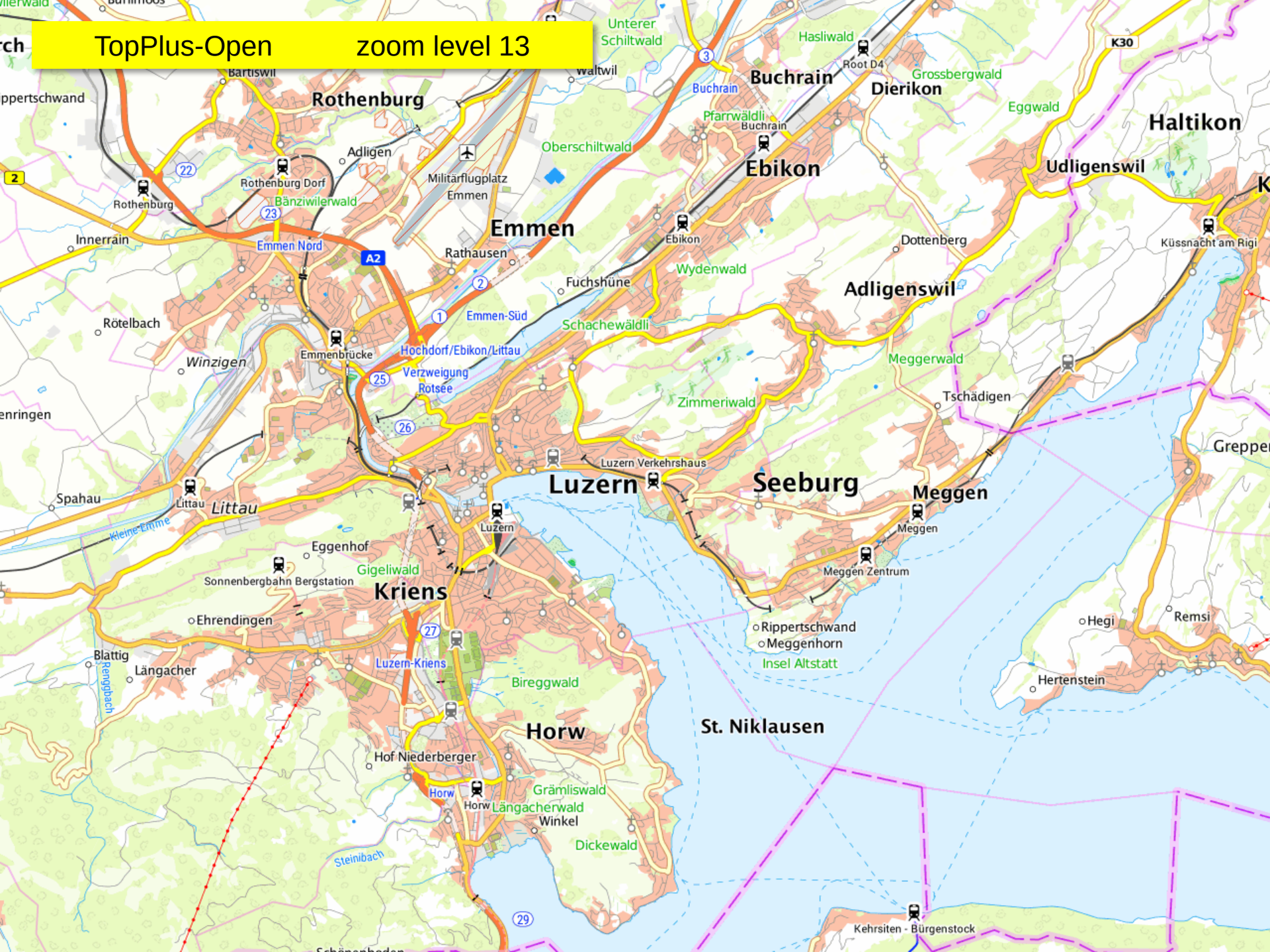
TopPlus-Open

zoom level 12



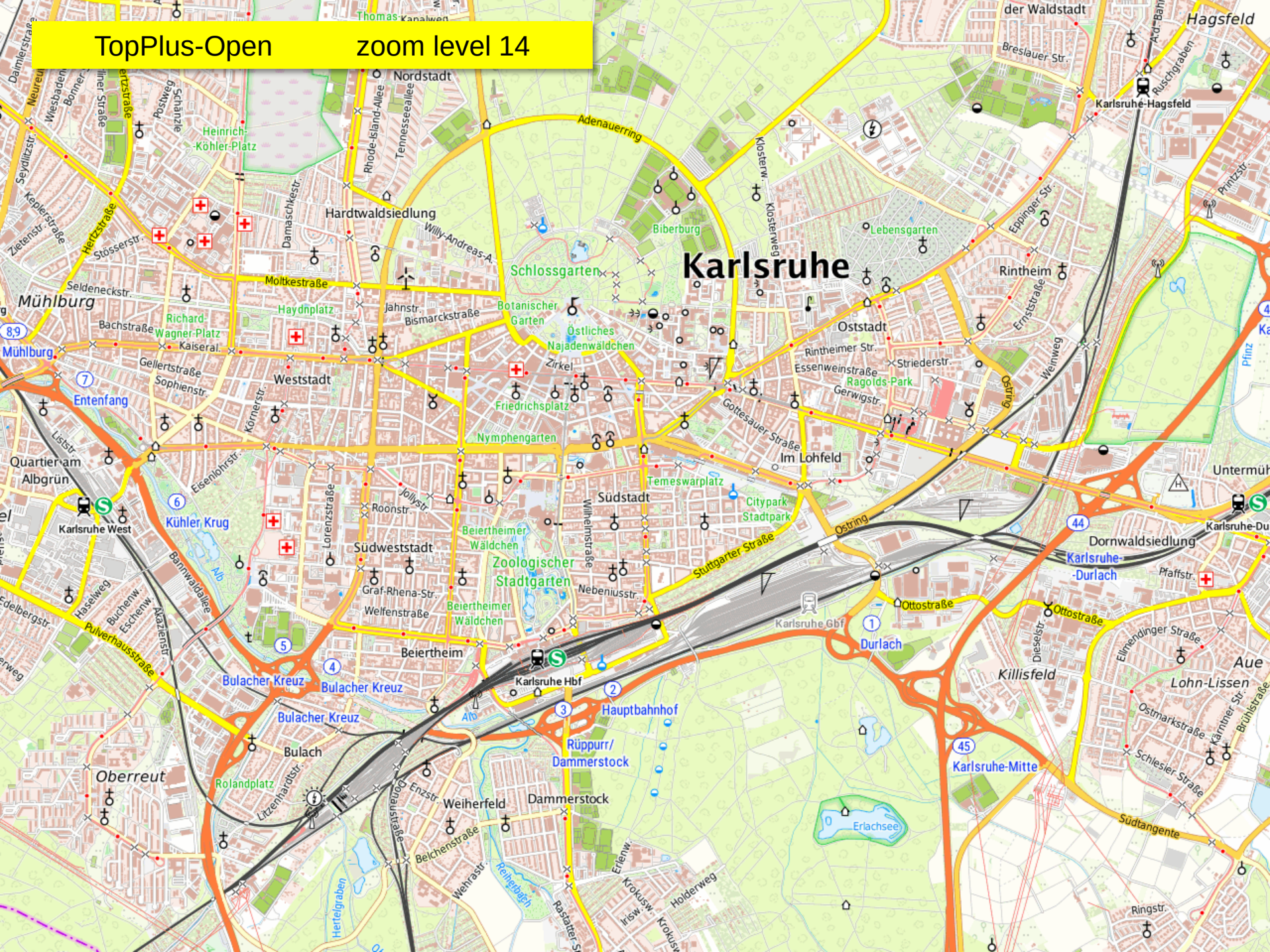
TopPlus-Open

zoom level 13



TopPlus-Open

zoom level 14



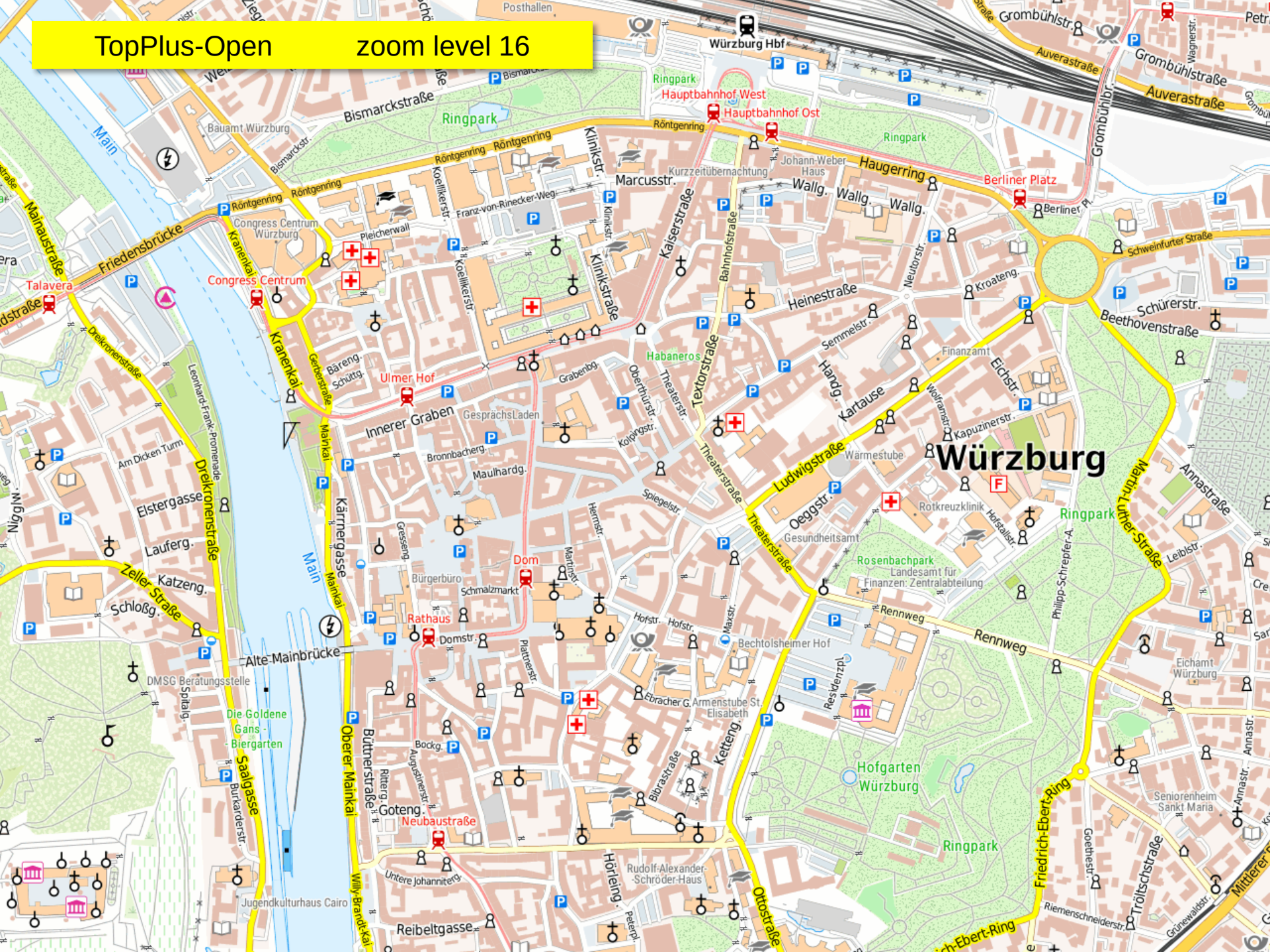
TopPlus-Open

zoom level 15



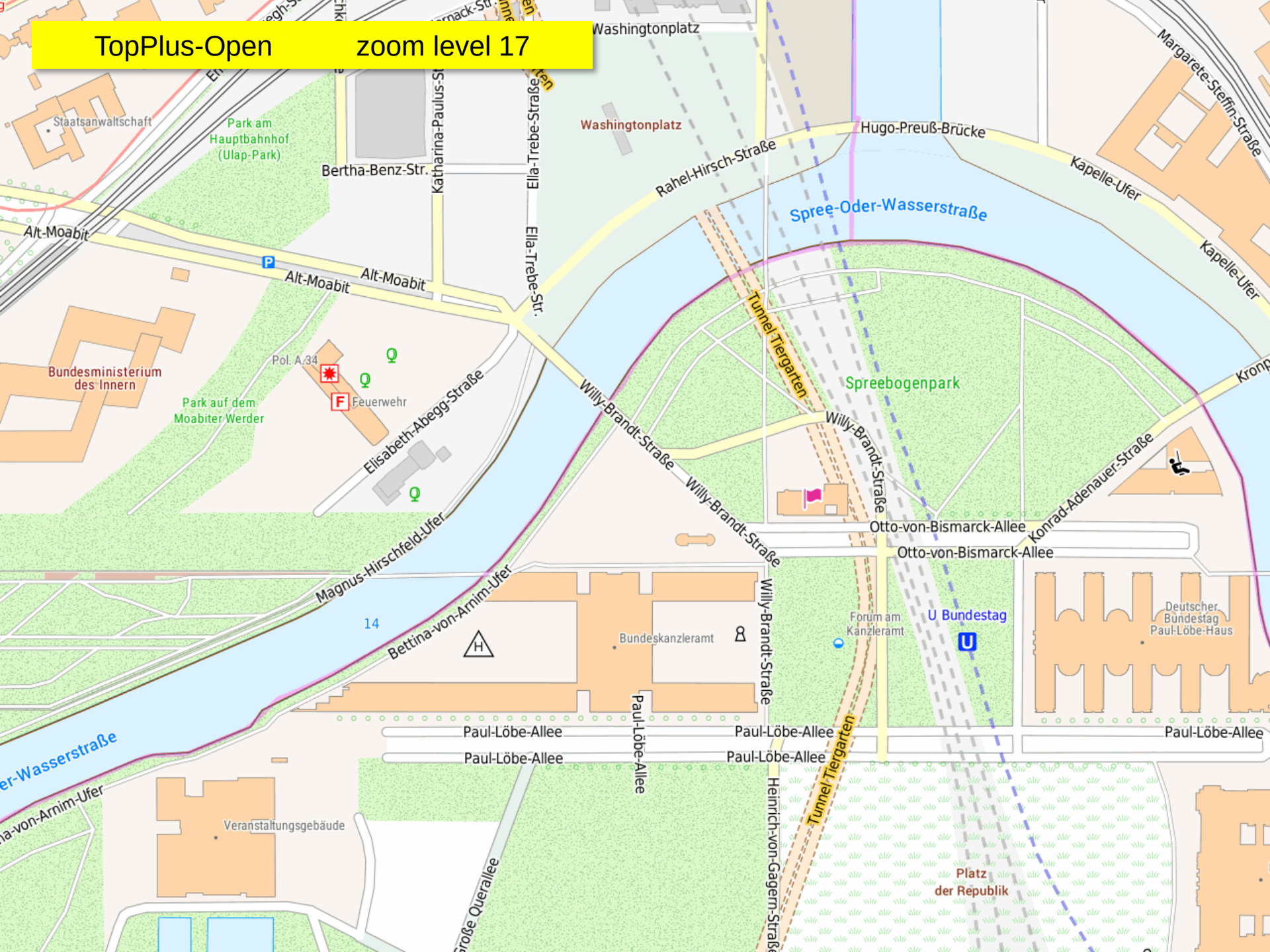
TopPlus-Open

zoom level 16



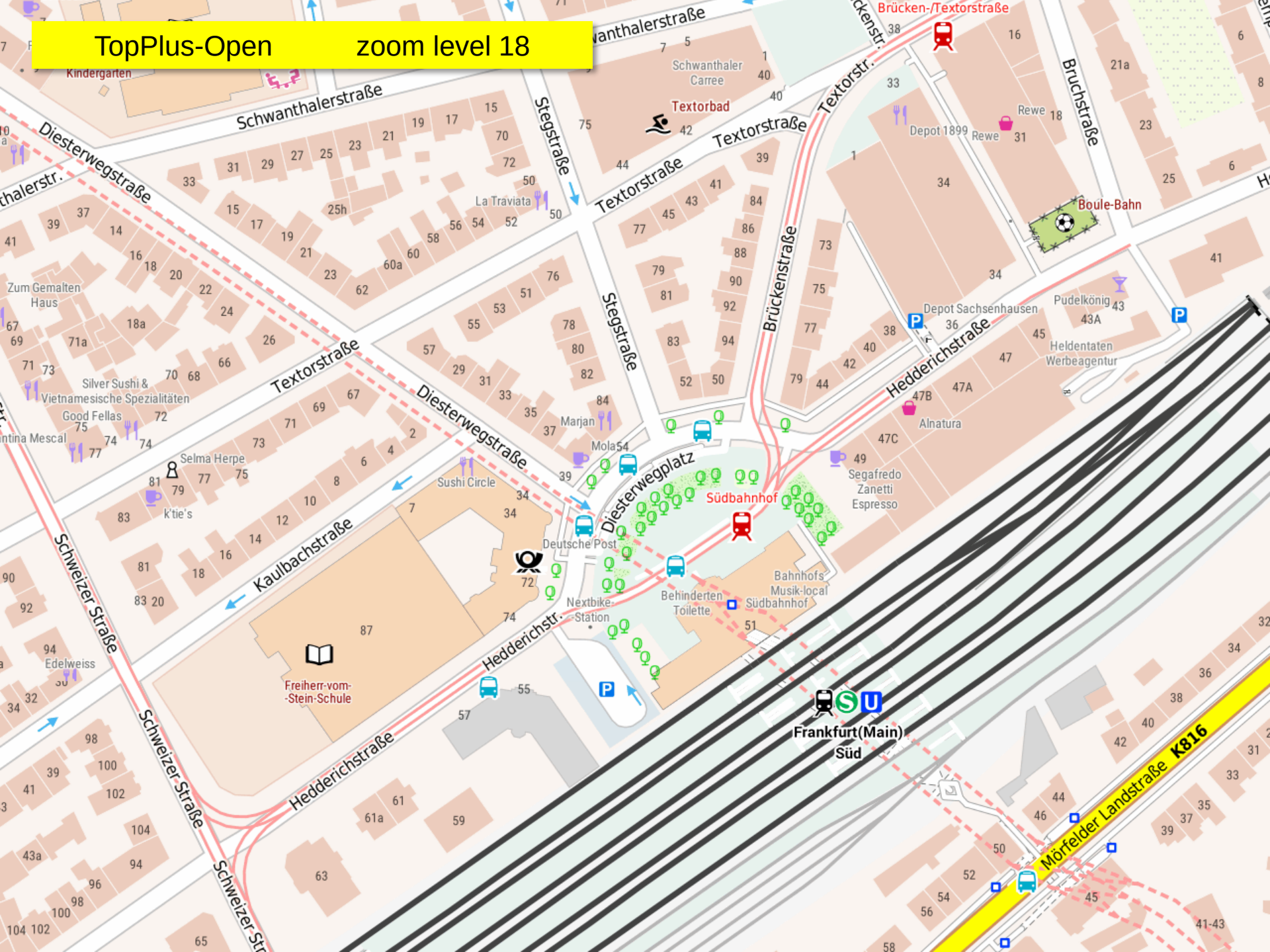
TopPlus-Open

zoom level 17



TopPlus-Open

zoom level 18

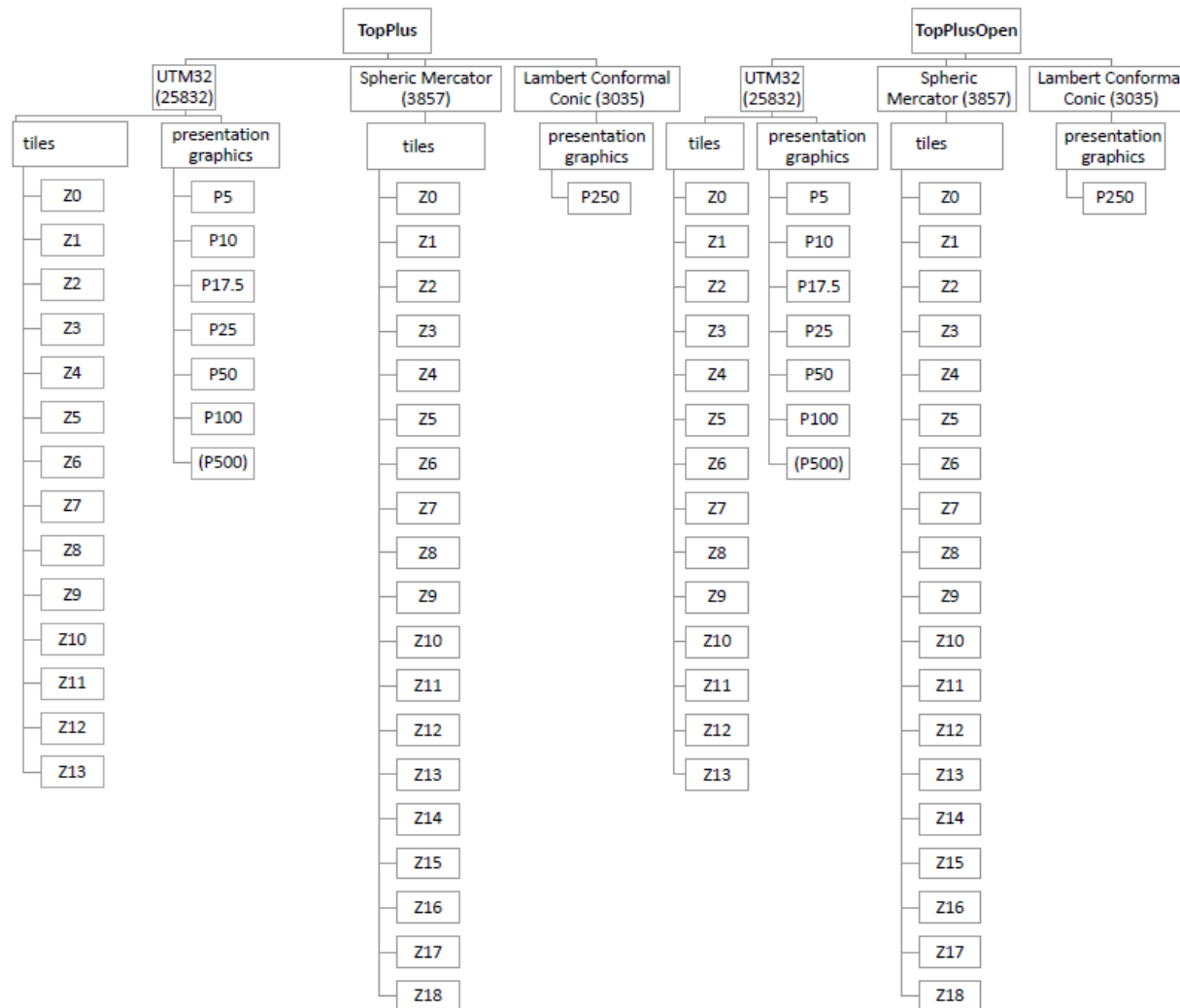


TopPlus (Open)

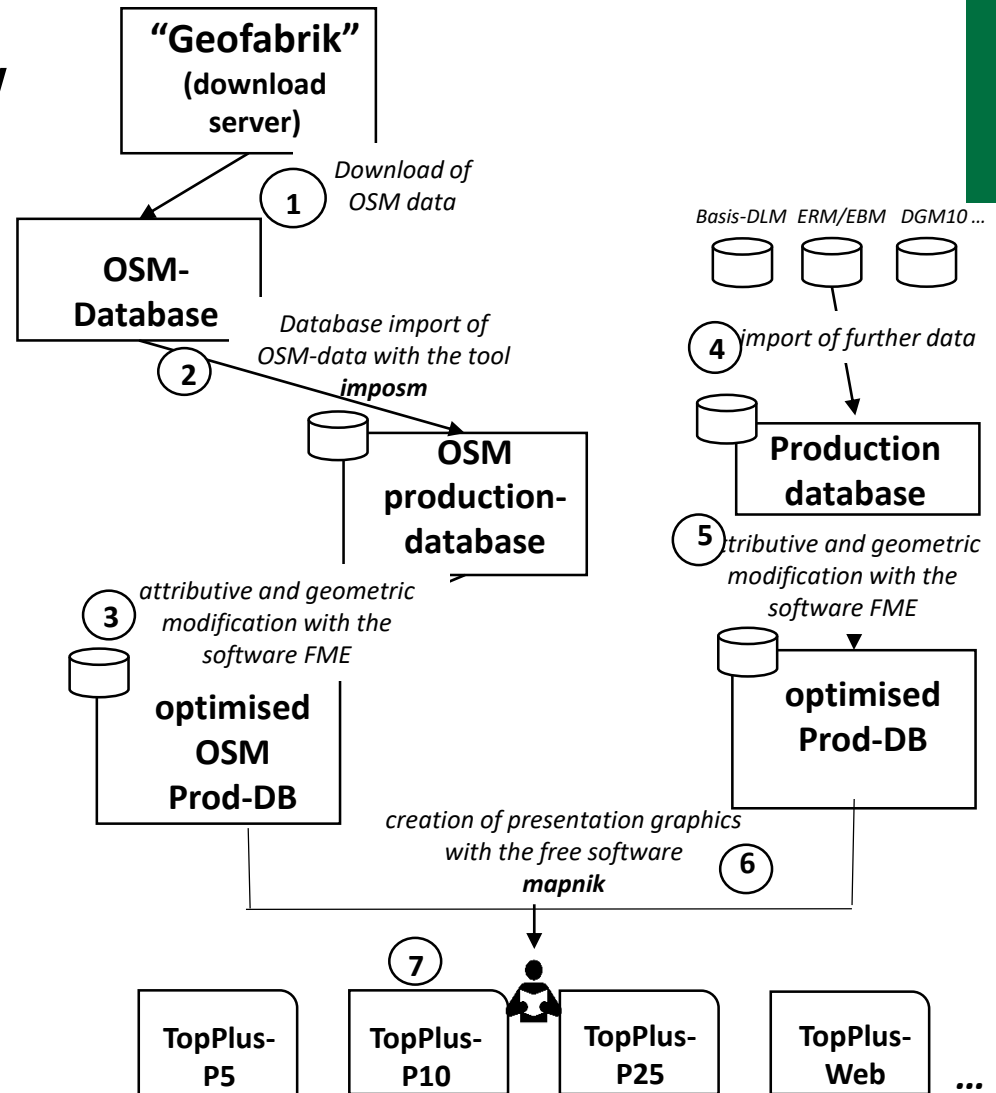
UTM32 projection, Europe

zoom level	resolution m/Pixel	scale denominator	DLM	footprints	DEM contour lines	DEM hill-shading
0	4891,97	17471321	Natural Earth			SRTM30
1	2445,98	8735660				
2	1222,99	4367830				
3	611,50	2183915	DLM1000/EGM			GMTED2010, 600m
4	305,75	1091958				
5	152,87	545979	DLM250/ERM			GMTED2010, 300m
6	76,44	272989			EU-DEM 30m	
7	38,22	136495				EU-DEM 30m
8	19,11	68247				
9	9,55	34124	Basis-DLM/OSM		DGM 10m	DGM 10m
10	4,78	17062		HU-Gen		
11	2,39	8531				
12	1,19	4265				
13	0,60	2133		HU-Ori		

TopPlus (Open)

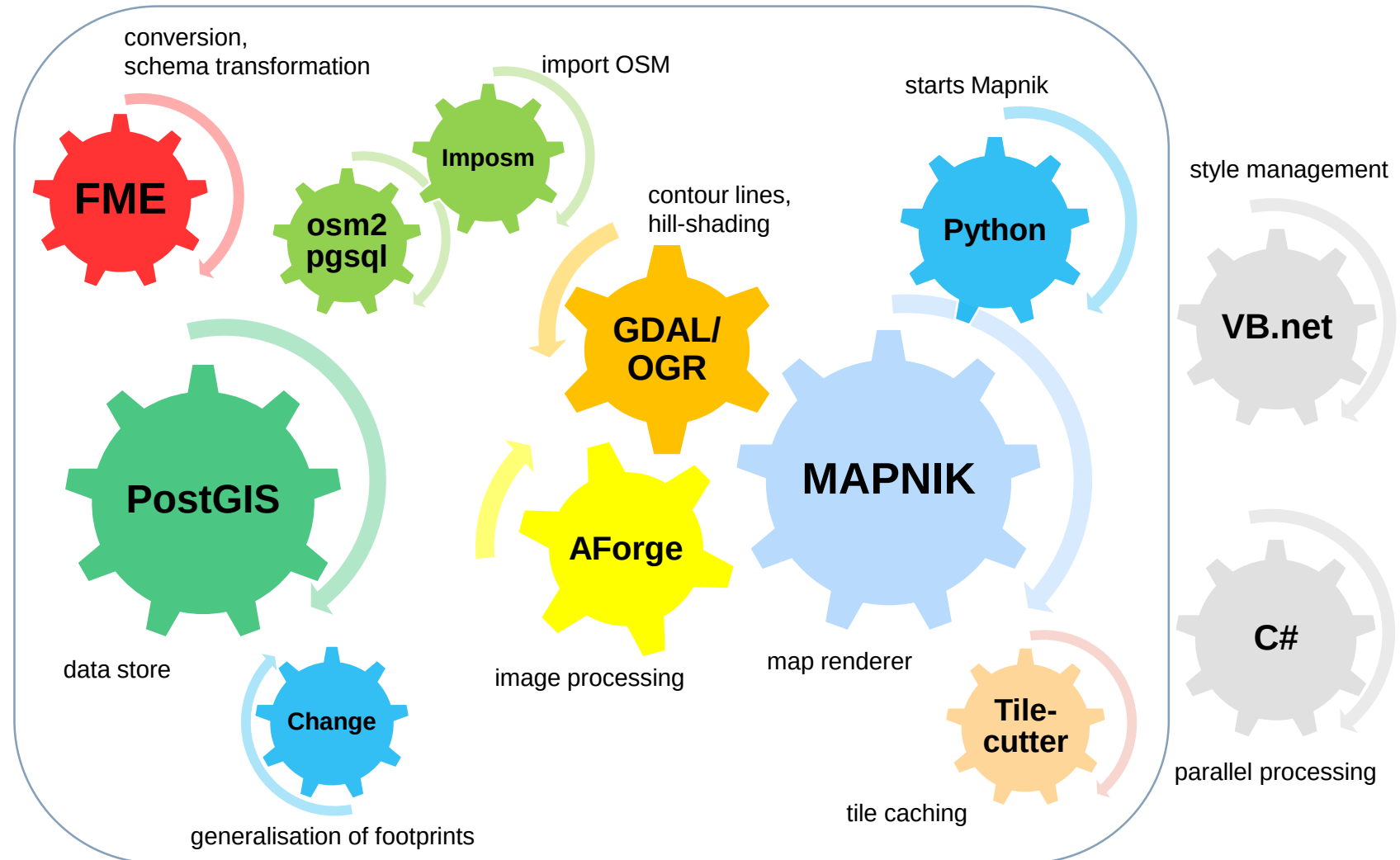


Software and workflow



The products are provided to the Federal Administration as raster data, standardised web services and as printed maps.

Software and workflow



Benefits

- Flexible reactions on requests from the federal government
 - Pan-european, cross-border presentation
 - From a overview maps to detailed city maps
 - More up-to-date than many topographic maps
 - Output for computer screens AND in printable quality
 - Relief representation
- Effective support for national safety authorities to fight crime and terrorism

Outlook

- Improve production cycle
- Vector tiles
- Overlays

Outlook



Thank you for your kind attention!

Contact:

Federal Agency for Cartography and Geodesy
Department GI3 - Topography
Richard-Strauss-Allee 11
60598 Frankfurt, Germany

contact person
Alexander Reichelt
alexander.reichelt@bkg.bund.de
www.bkg.bund.de
Tel. +49 (0) 69 6333-4028