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[A Mapserver for German Historical GIS](#)

Paper presented to an International Workshop on Historical GIS

Hosted by Fudan University and

China Historical GIS - Harvard University

Shanghai, China

August 23rd - 25th, 2001



The problem stated:

Germany reached national unification comparatively late (in 1871).

Thus: territorial units played a major role in her history.

An IT-based system of observing the development of these units over a longer period of time is a useful tool.

The Mapserver **IEG-Maps** + two **GIS-based historical information systems** connected to it will be such tools.

Sovereign and "semi-sovereign" German territories since 1800

<i>Year</i>	<i>Number</i>	<i>Type</i>
1800	c. 2000	sovereign territorial states, Imperial knights, Imperial cities
1820	41	sovereign territorial states as federated states
1871	21	federated states
1919	18	states
1949	11	federal states (Bundeslaender) in the Federal Republic
1949	5	states in the German Democratic Republic
1952	15	districts in the GDR
1991	16	federal states

2000 territorial units made up the „Old Empire“.

What does this look like on a map?

Territories of Southwest Germany in 1789 (partial scan)



Napoleon changed all this.

„Only“ 41 federated states formed the so called
„*German League*“ in 1815/20.

However, some territorial division remained, particularly in northern and central Germany.

Political division of North Central Germany in 1820 (from IEG-Maps)

Braunschweig * Lippe - Detmold * Schaumburg - Lippe 1820



Objective

40 territorial units (or: sovereign states!) of the German League - Austria excluded - will be the principle objects of inquiry and observation, moving forward in time from 1812 to the present.

Possibly - if funding permits - these 40 (and some others) may be traced also backward in time (to about 1600).

The Mapserver IEG-MAPS

contains or will contain maps which depict:

- major changes in borders between sovereign or federated German states since 1812 (for certain benchmark years)
- major changes in borders between larger administrative units (provinces, districts) of larger German states since 1808
- major changes in shorelines since c.1800
- growth of the transport network since c. 1800

Mapserver IEG-MAPS

Benchmark years for political maps (red: implemented)

Germany	Central Europe	Europe
1812	1812	1812
1814	1820	1820
1820	1848	others
1848	1860	
1867	1867	
1871	1871	
1921	1914	
1923/1930	1922	
1937	1937	

The Mapserver IEG-MAPS

Contains at present c. 100 maps

This number will be increased to about 250 by the end of 2002

Maps are downloadable in various file formats (PS, PDF, GIF)
and print sizes (A3, A4)

The server has about 3000 visitors per month

IEG-MAPS

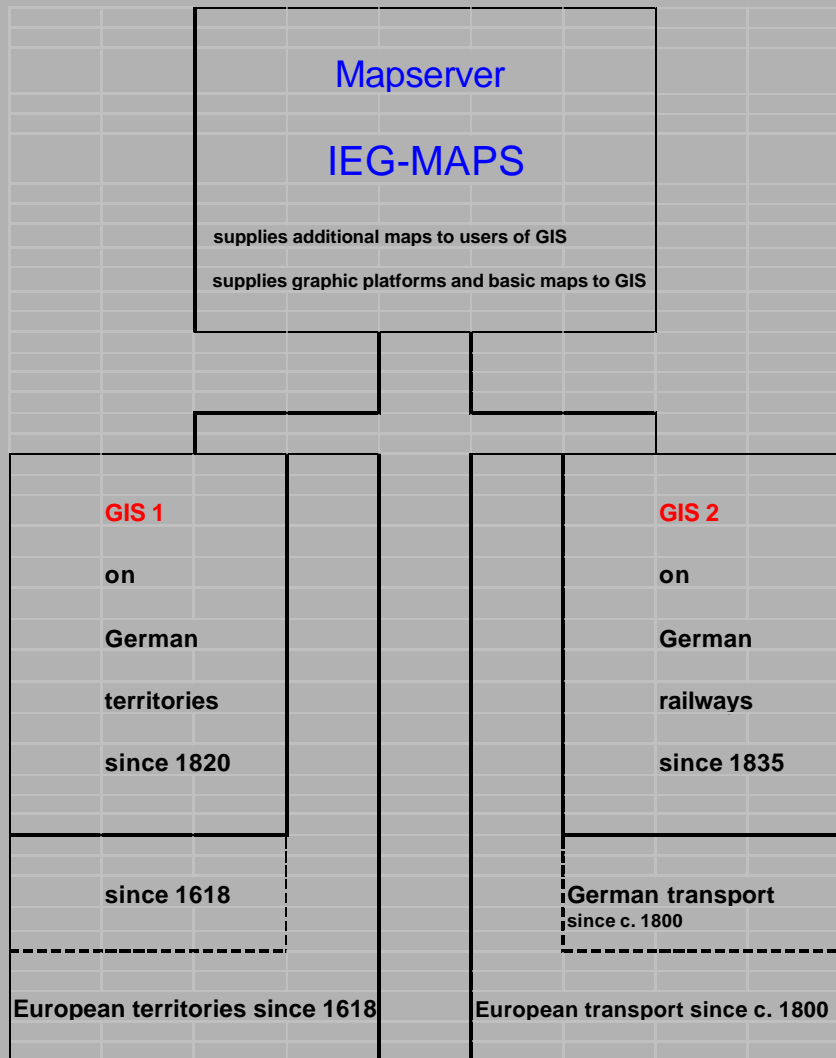
will become the nucleus for at least two

GIS-based **Historical Information Systems**

(1) German and European territories since c. 1800

(2) Railways in Germany & Central Europe 1835-80

Mapserver and Historical GIS



Data storage and data conversion

Themak2

A map-construction program:
Draws data from common geometry files
and combines it with attribute data
on a map-related basis

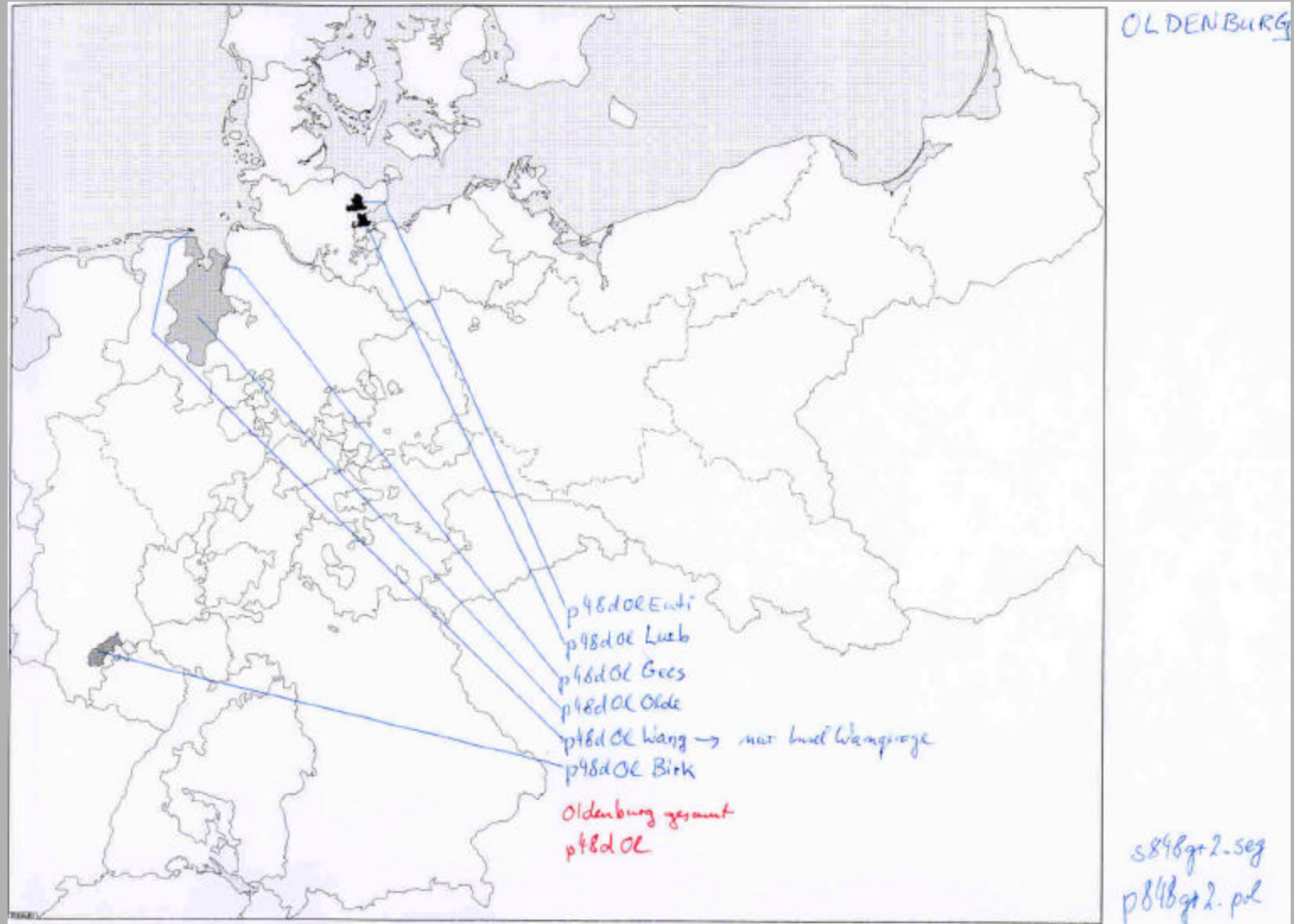
Kylix-GIS

Reads Themak2 files
Allows for geo-referencing
and data handling on a GIS basis

ArcView

A more general GIS platform
Web-production module

Encoding (Themak-level)



(1)

An Historical Information System
on German (and European) territories since c. 1800

The planned GIS will contain:

- (1) Information on the **political geography** of territorial units
- (2) queries to be interfaced interactively by the user on
 - **points** (villages, towns, cities, railway stations, etc.)
 - **lines** (railway lines, roads, inland waterways)
 - **areas** (e.g. administrative subdivisions of larger units)
 - **attribute data** superimposed on the above three levels

Case 1

The Grand Duchy of Saxe-Weimar-Eisenach

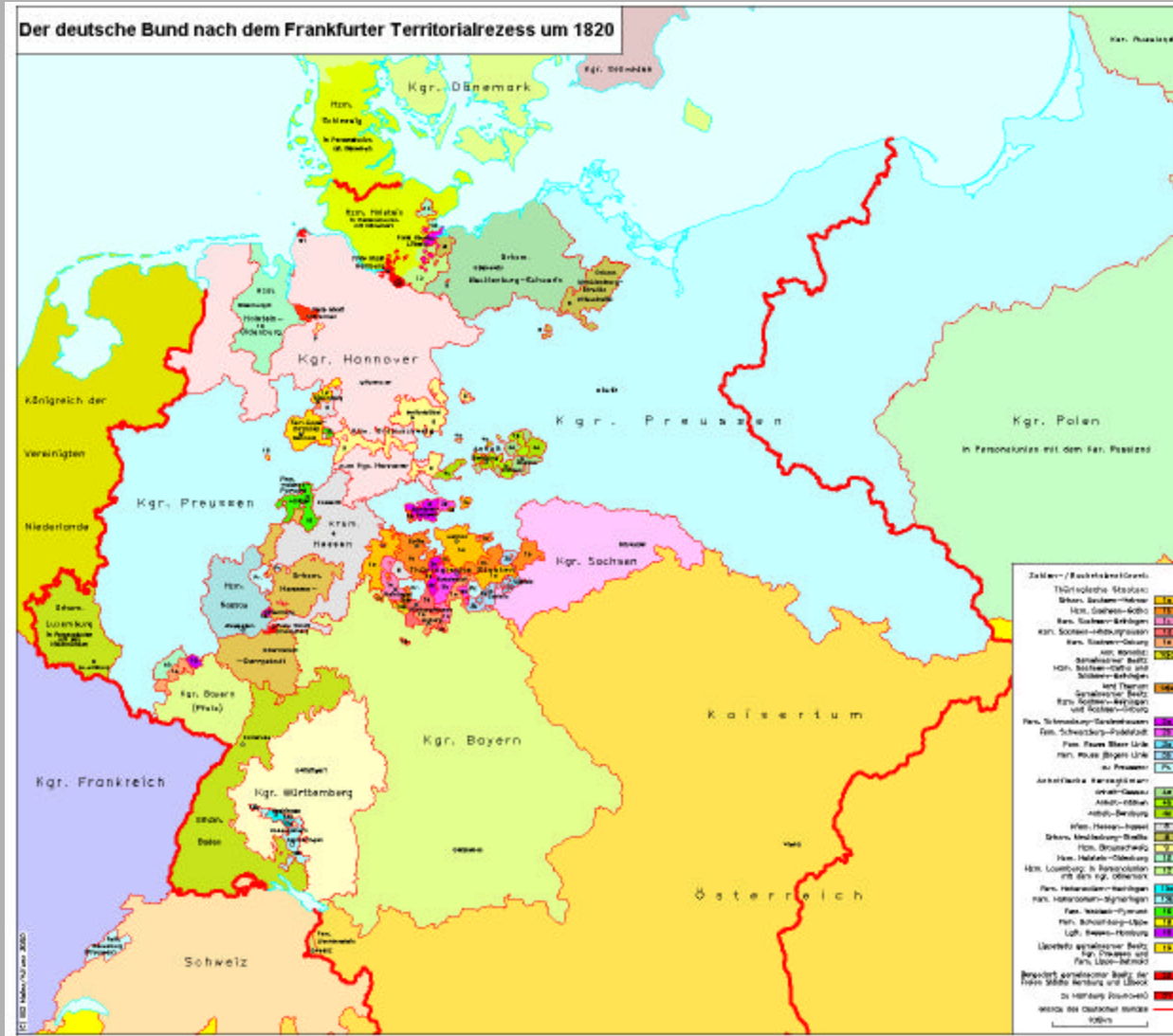
Size: c. 3500 sq kms (in 1820)

Population: c. 200.000 (in 1820)

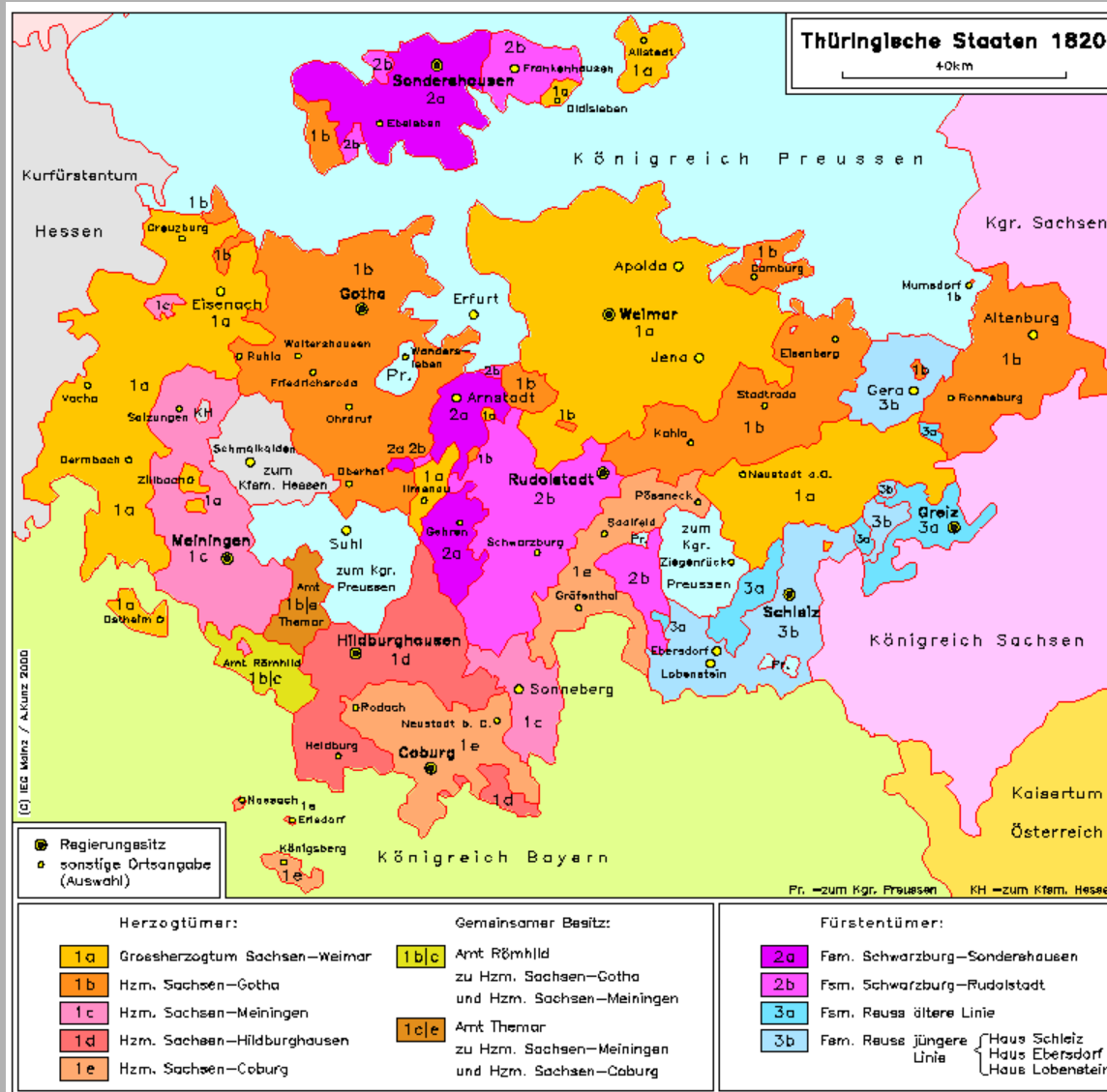
Capital: Weimar

Period of existence: 1741 – 1918 (1918-20 as a *Freistaat*)

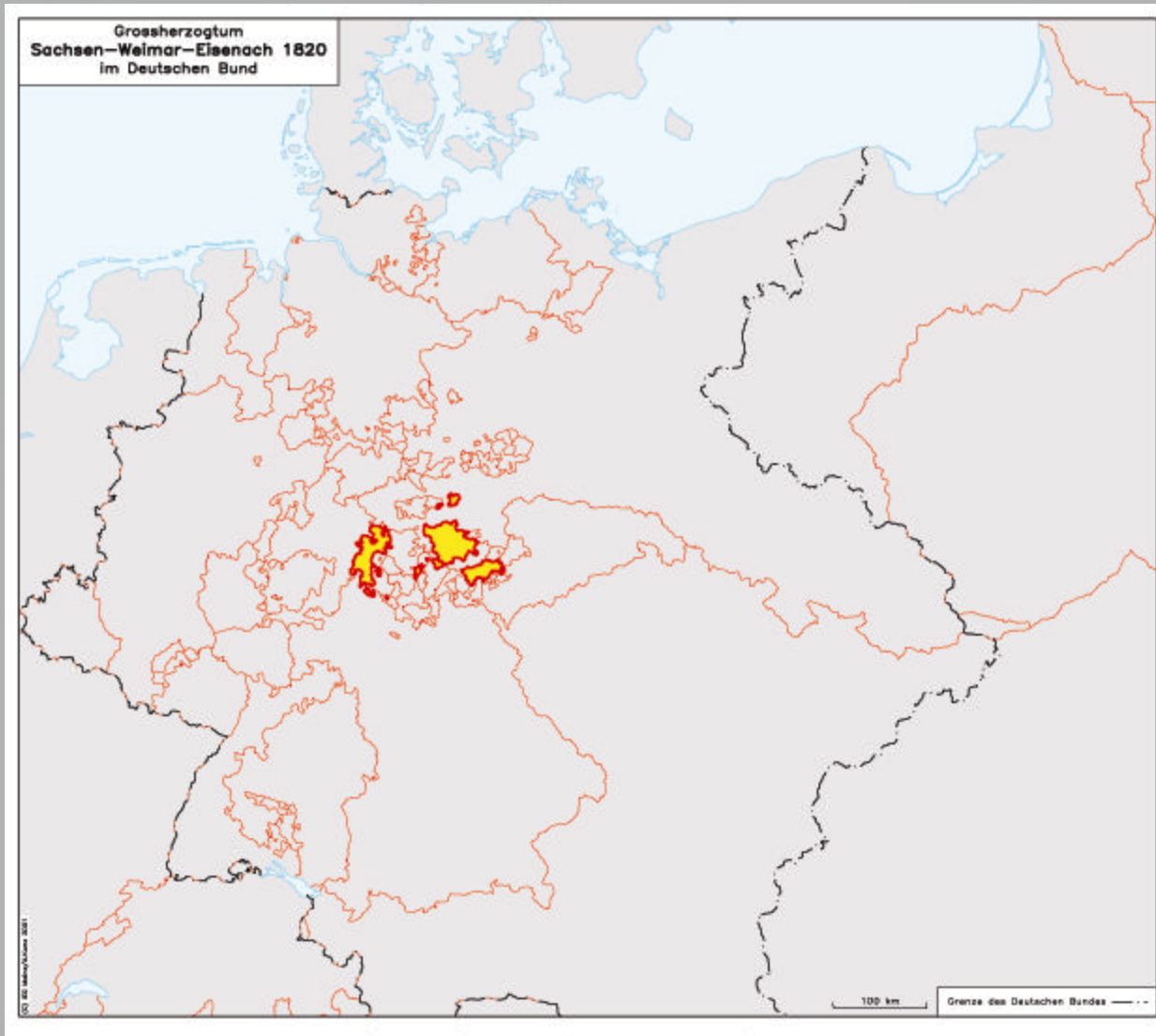
German states in 1820 (from IEG-Maps)



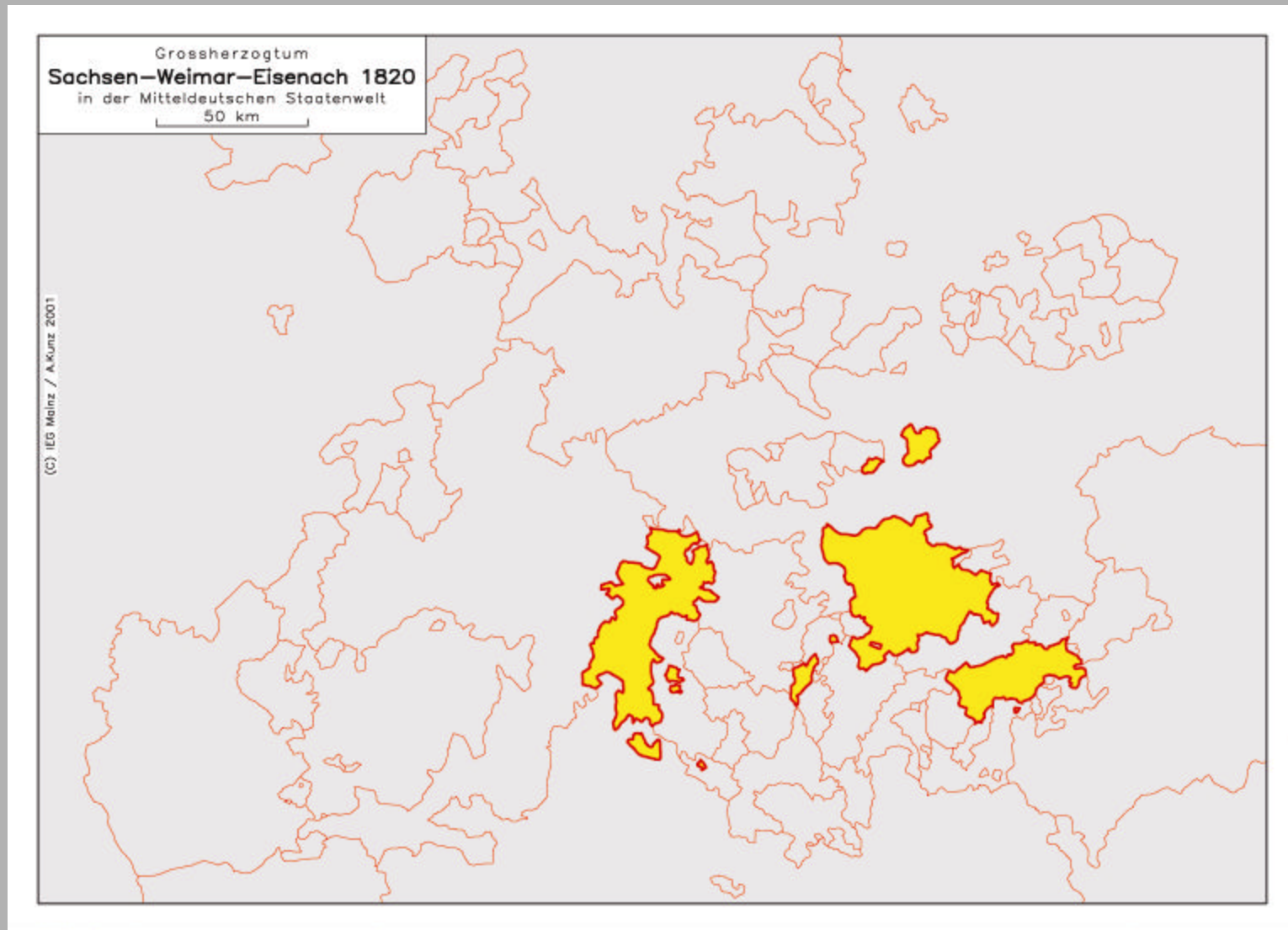
Thuringian states in 1820 (from IEG-Maps)



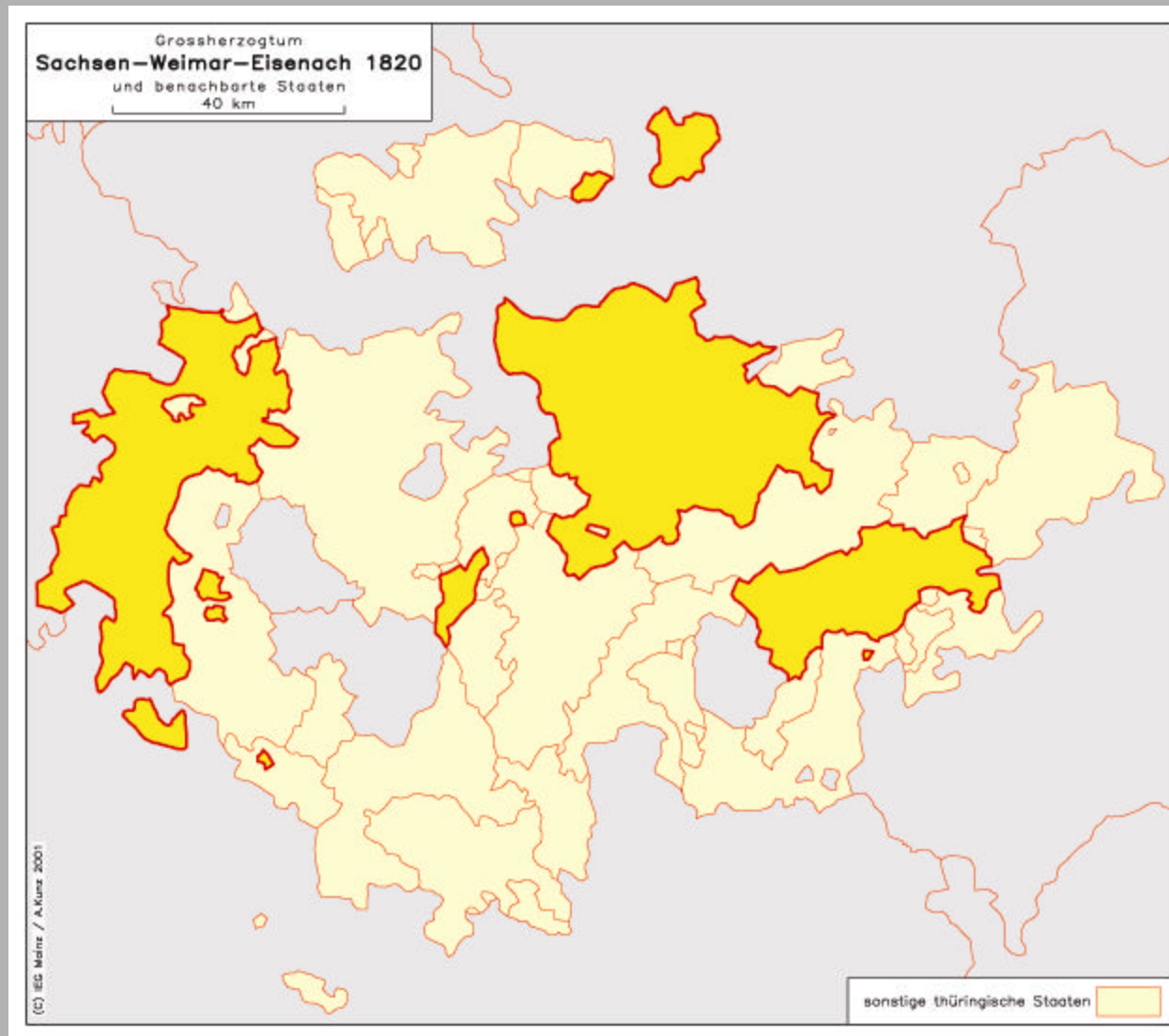
GIS-Simulation: Level 1



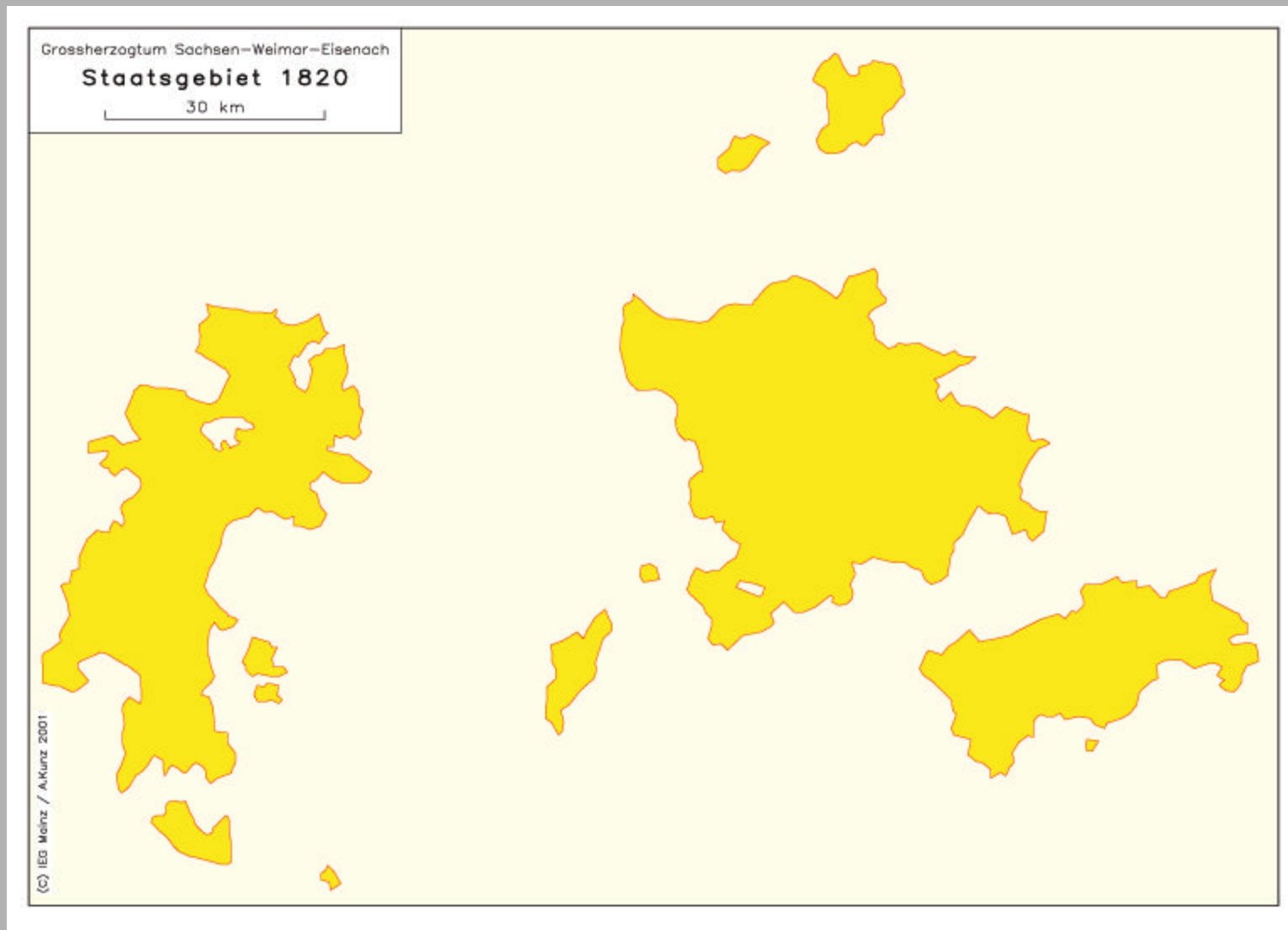
GIS-Simulation: Level 2



GIS-Simulation: Level 3



GIS-Simulation: Level 4 (state territory)



GIS-Simulation: Query for state territory (at level 4)

S-W-E: State territory

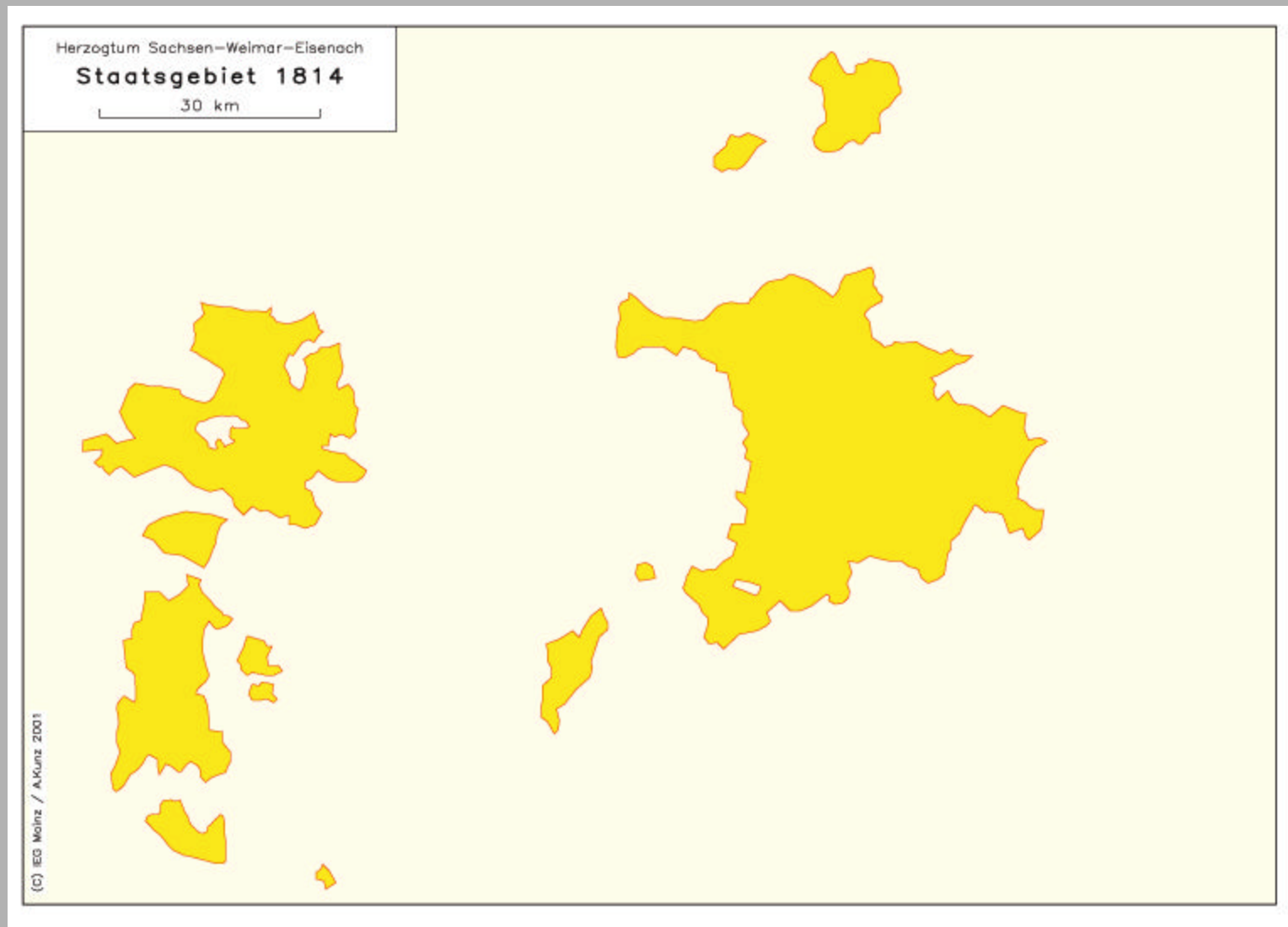
1814

1820

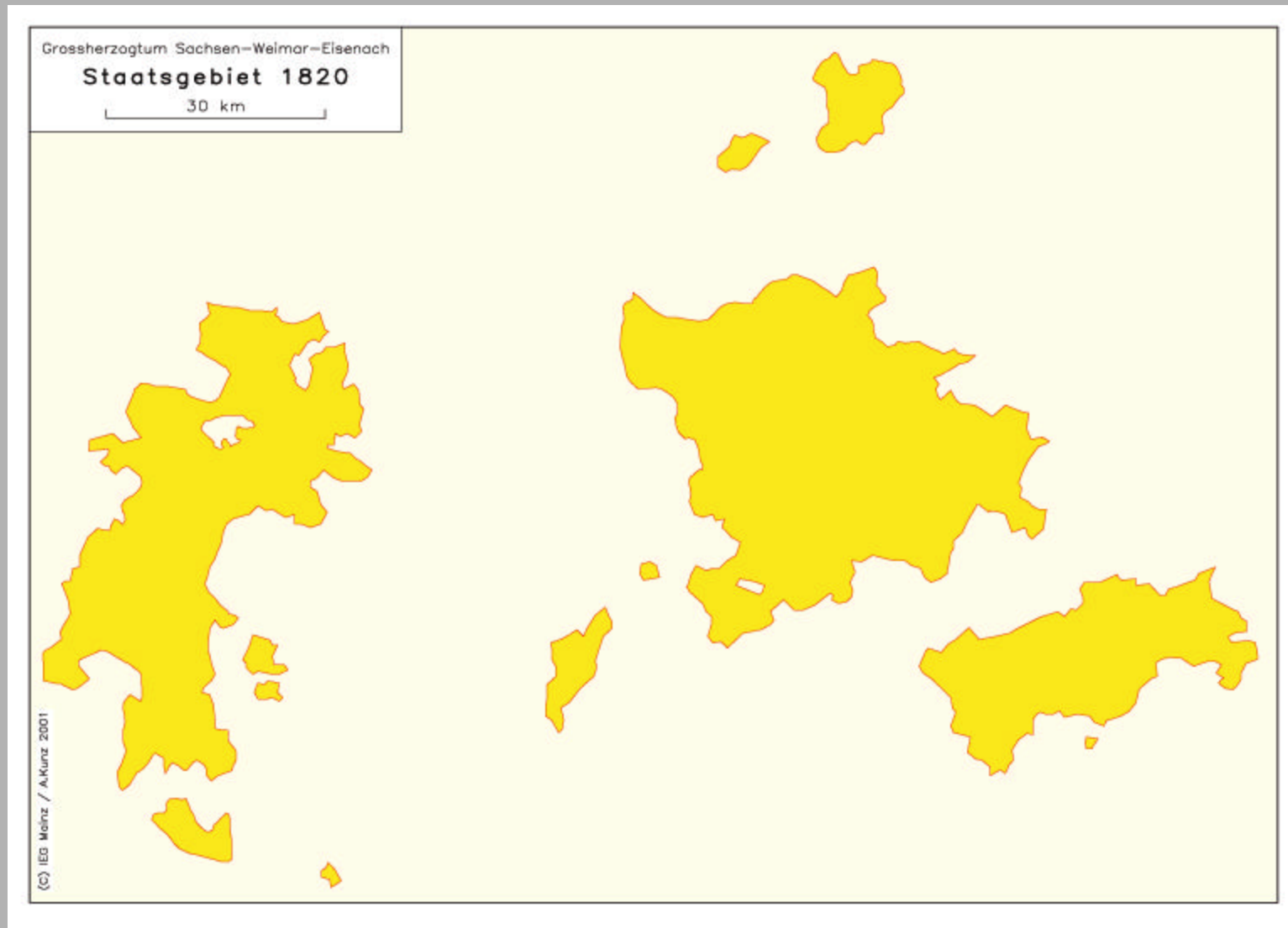
1919

1920

GIS-Simulation: Grand Duchy of Saxe-Weimar - state territory in 1814



GIS-Simulation: Grand Duchy of Saxe-Weimar - state territory in 1820



GIS-Simulation: Query for towns (at level 4)

S-W-E: Towns

1820

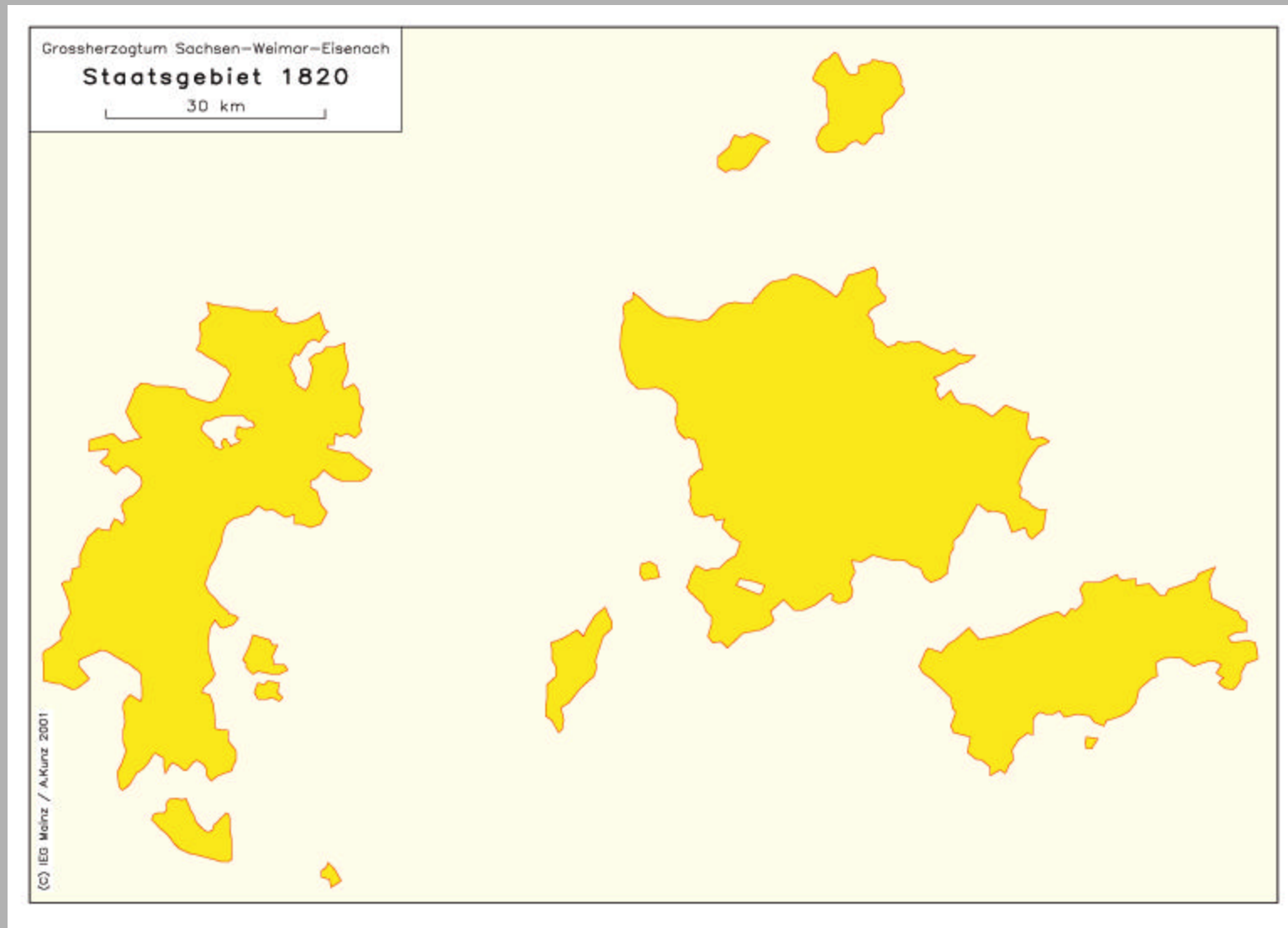
1848

1867

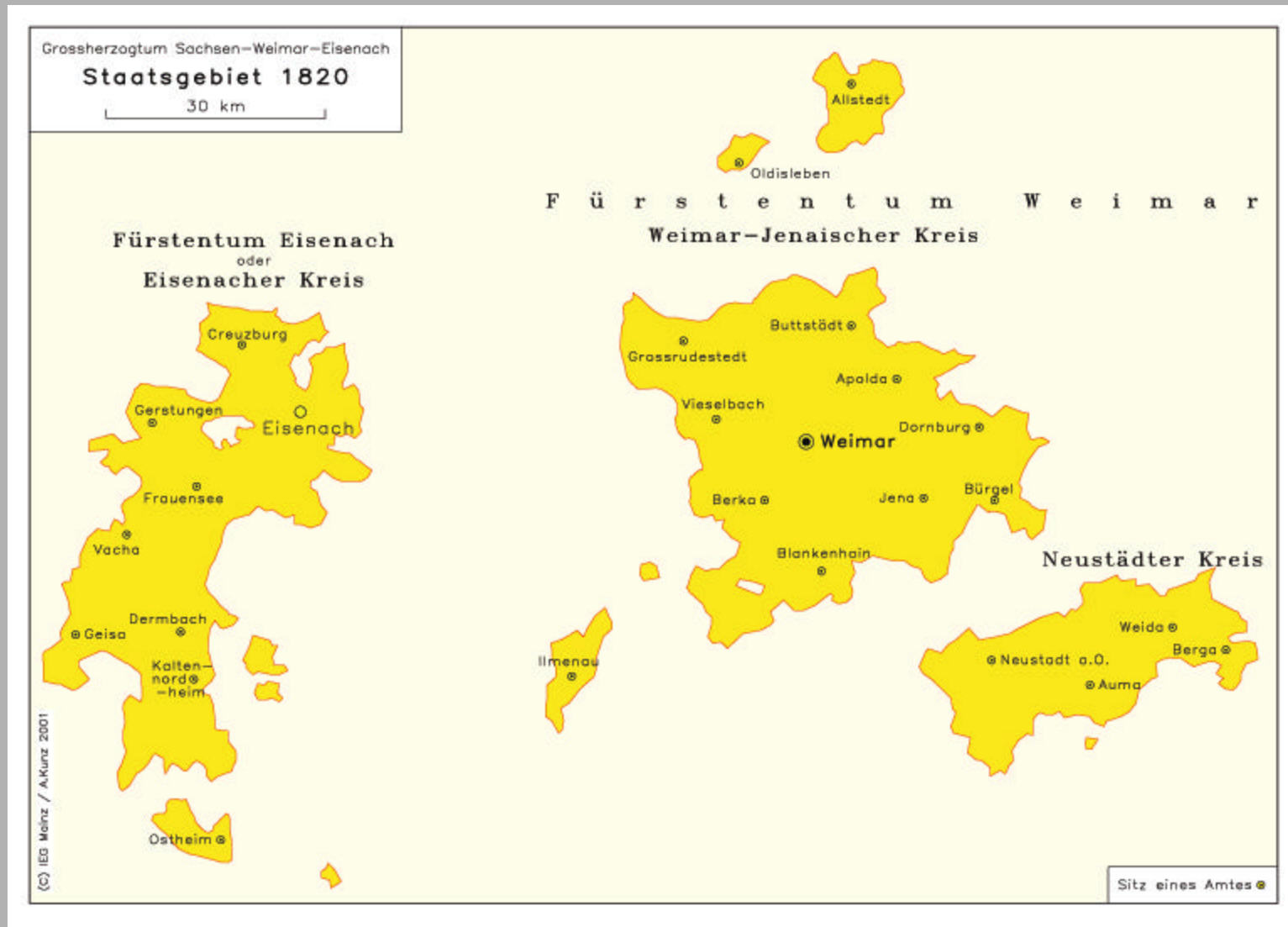
1871

etc.

GIS-Simulation: Grand Duchy of Saxe-Weimar - state territory in 1820



GIS-Simulation: Grand Duchy of Saxe-Weimar - state territory in 1820



GIS-Simulation: Query for railway lines (at level 3)

S-W-E: Railway lines

1845

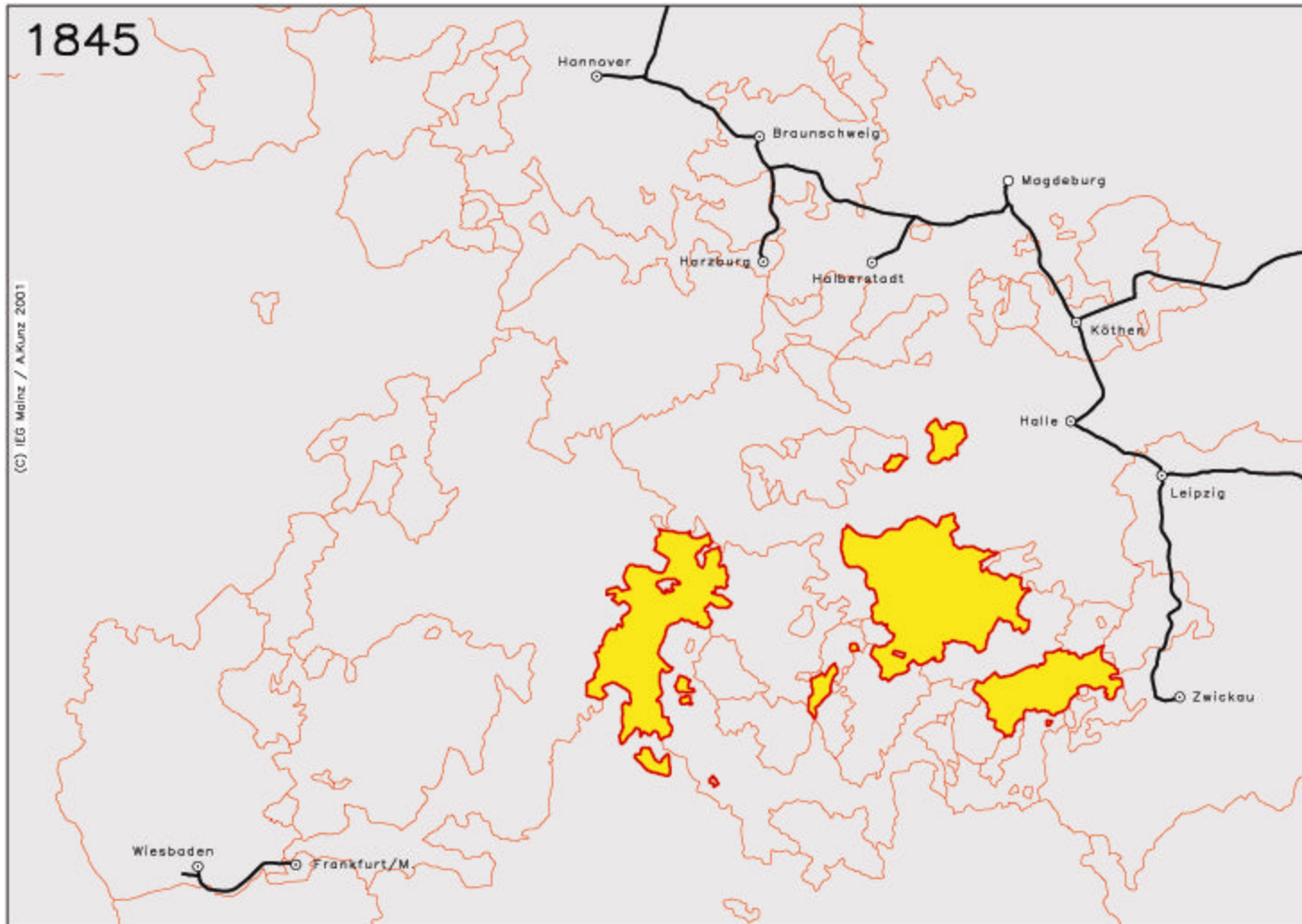
1846

1847

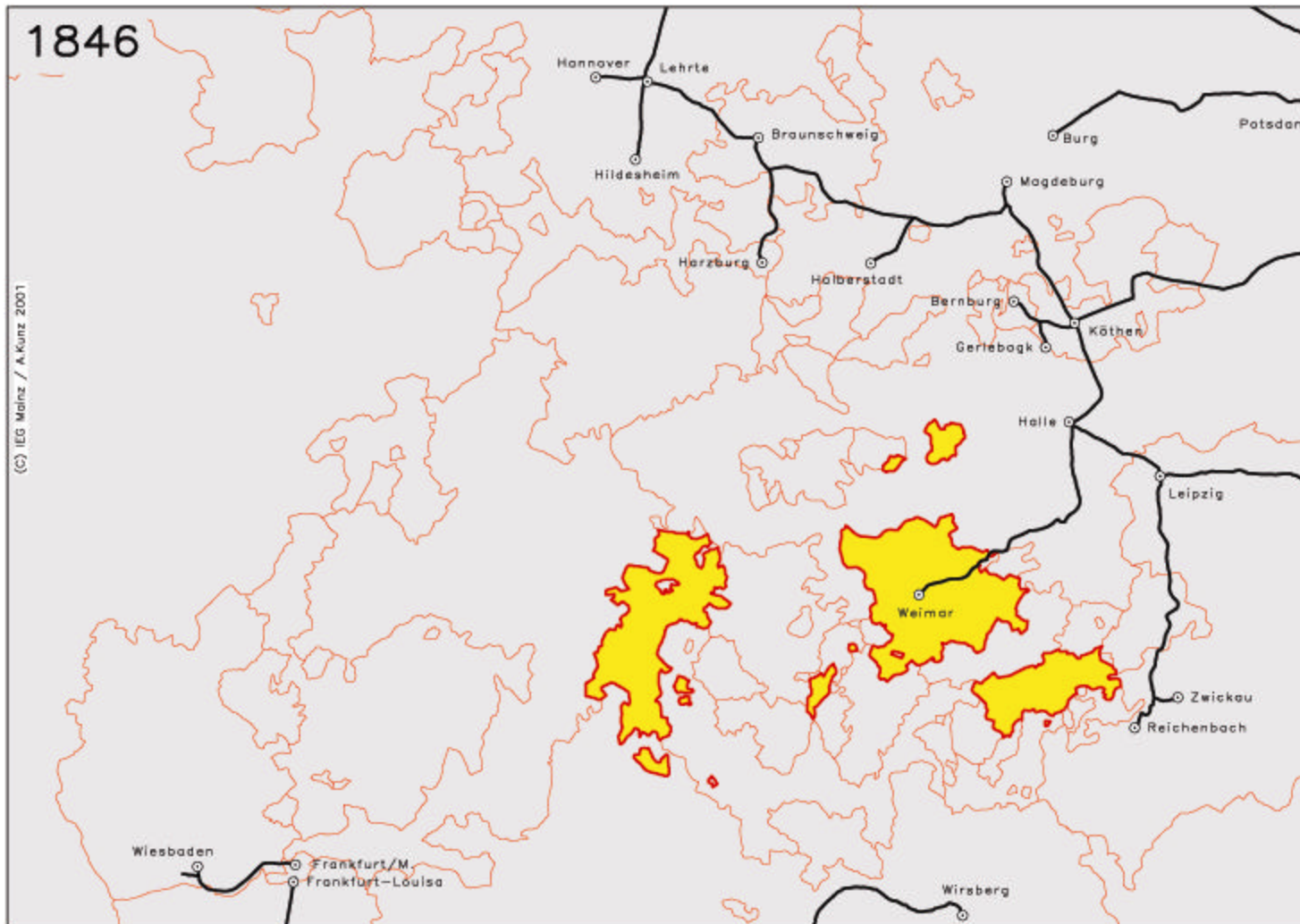
1848

etc.

GIS-Simulation: rail network 1845



GIS-Simulation: rail network 1846



Case 2

The Kingdom of Prussia

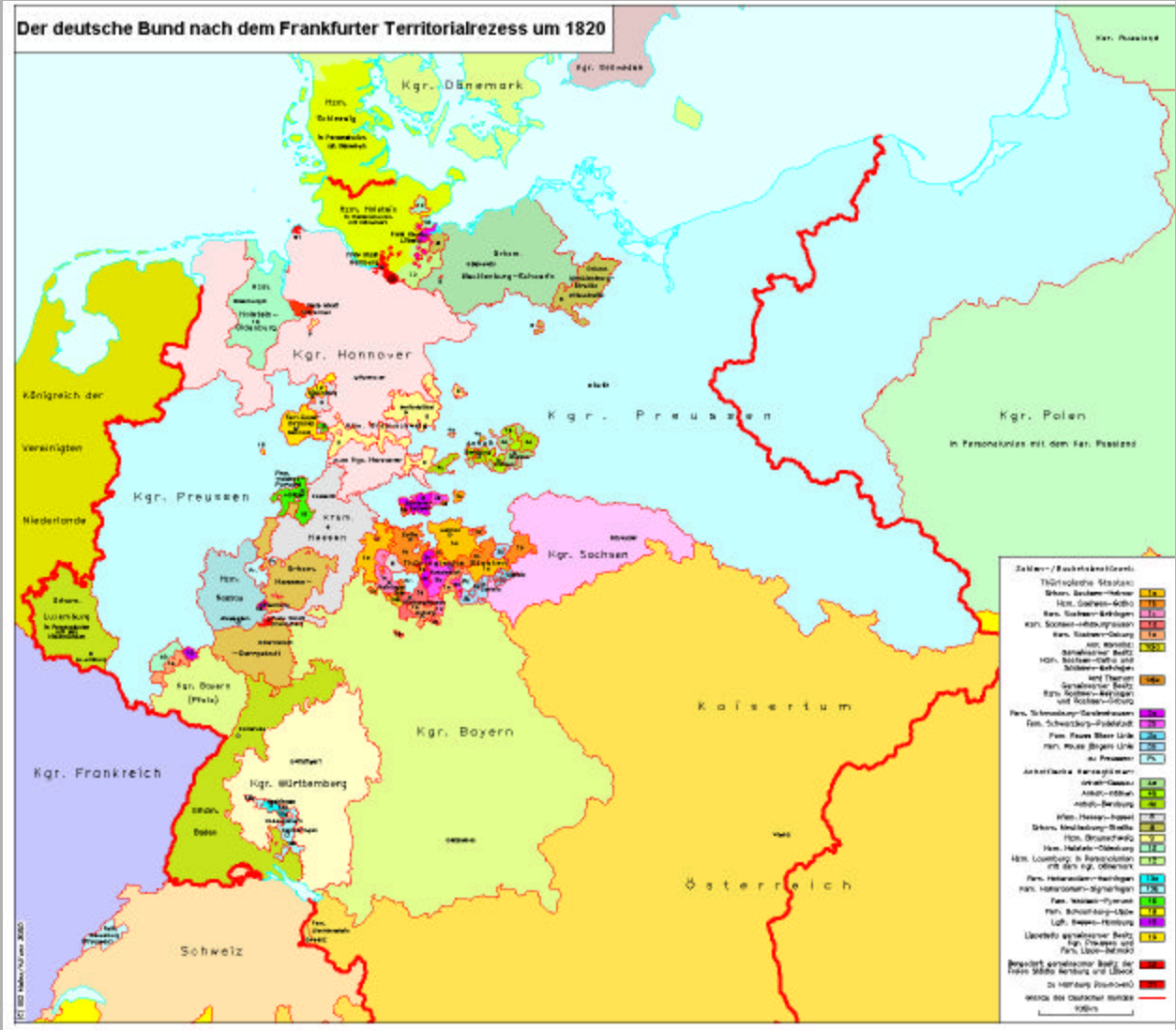
Size: c. 280 000 sq kms

Population: 10.4 Million

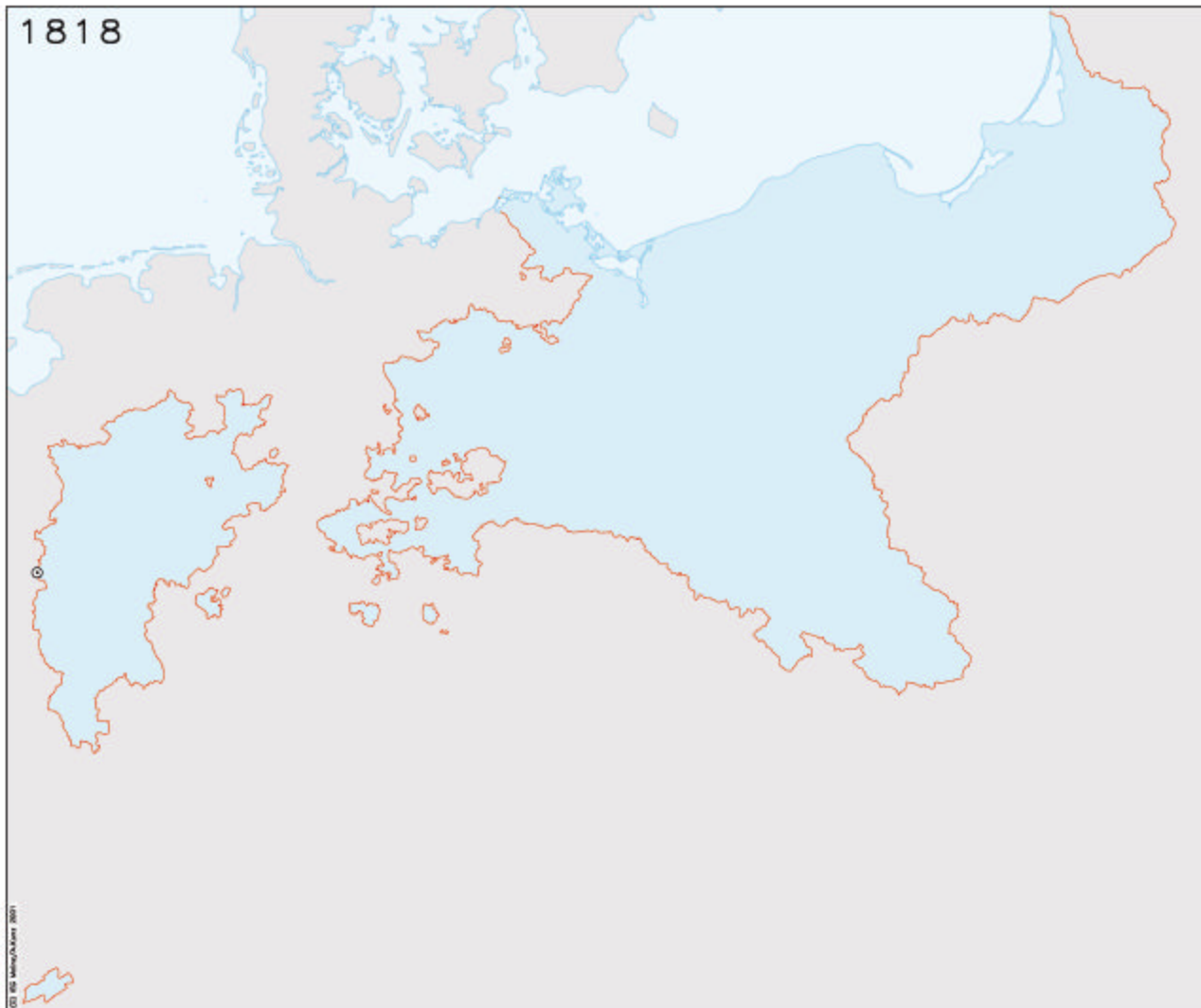
Capital: Berlin

Period of Existence: 1701-1945 (1918/19-1945 as a *Land*)

German states in 1820 (from IEG-Maps)



Prussia in 1818 (level 1)



GIS-Simulation: Query for state territory at level 1

Prussia: State territory

1812

1814

1818

1834

1850

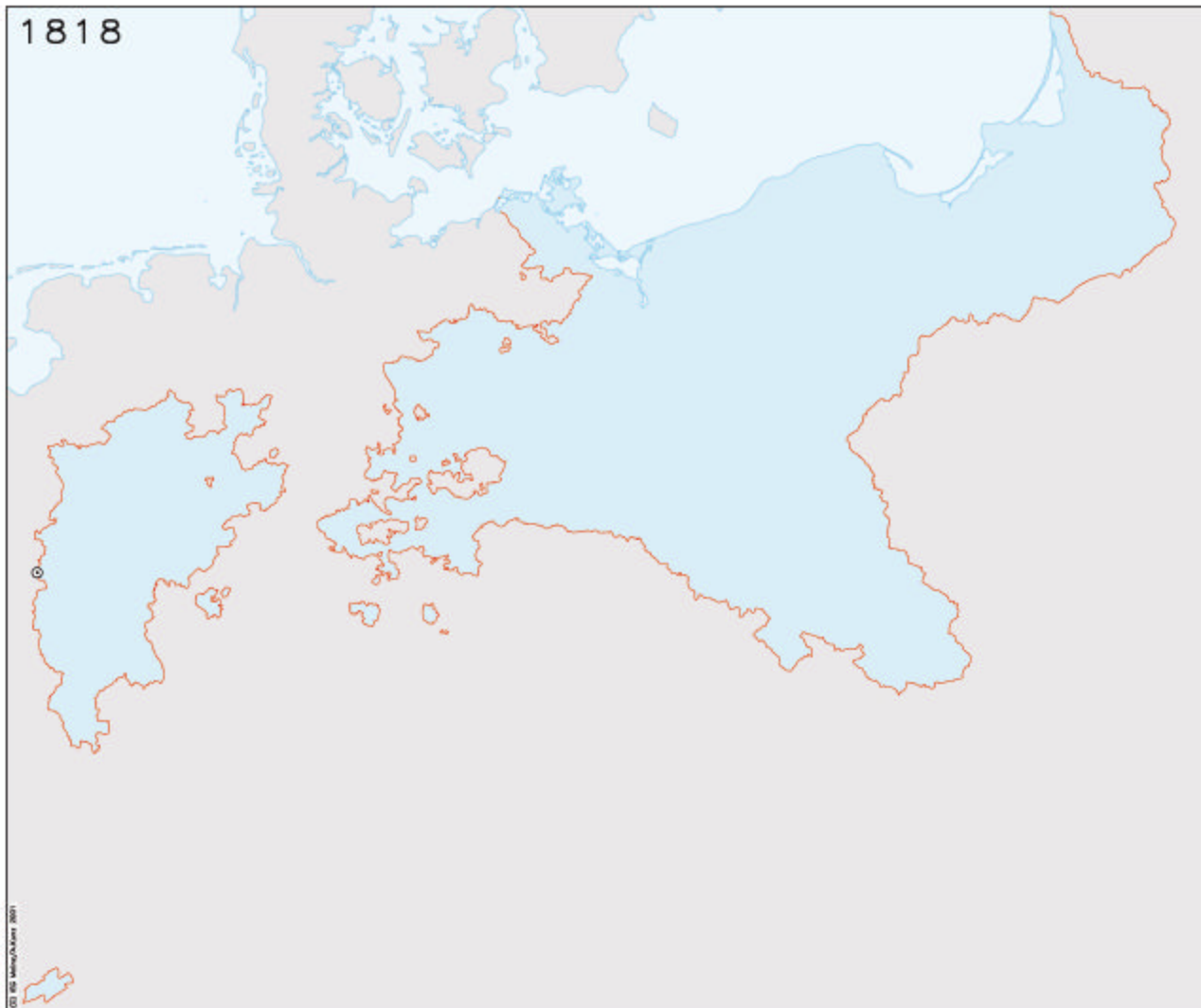
1868

1876

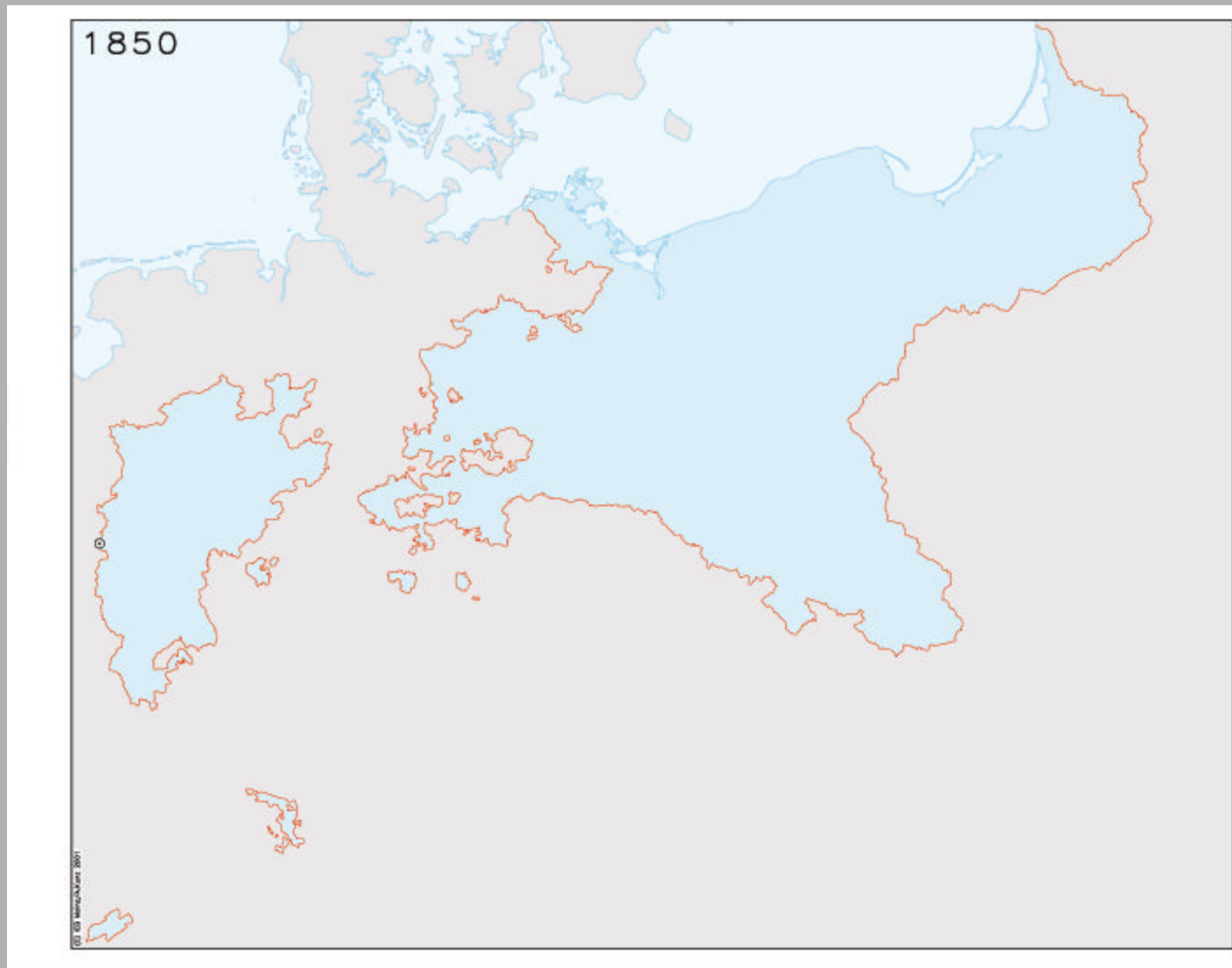
1922

etc.

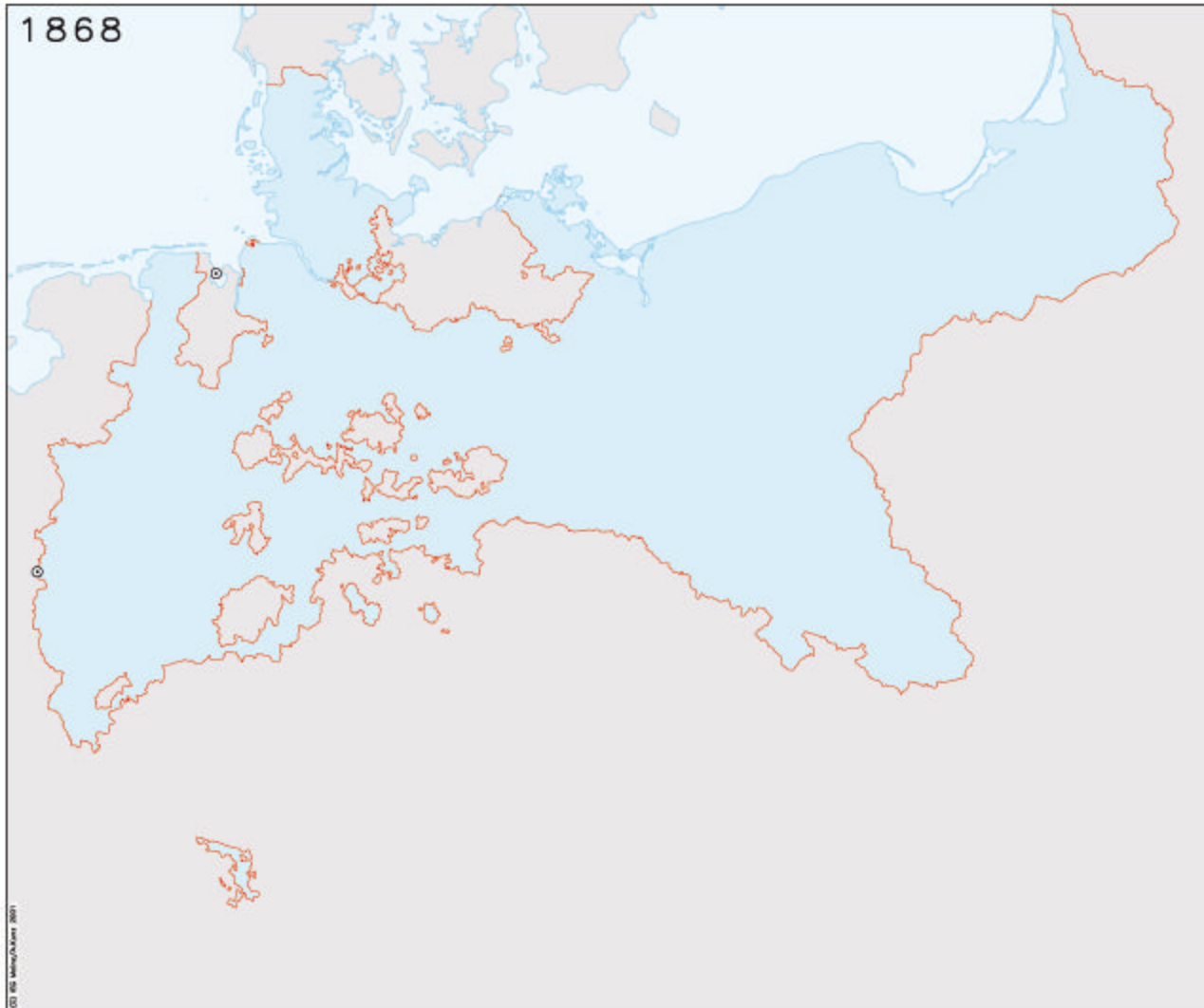
GIS-Simulation: territorial development



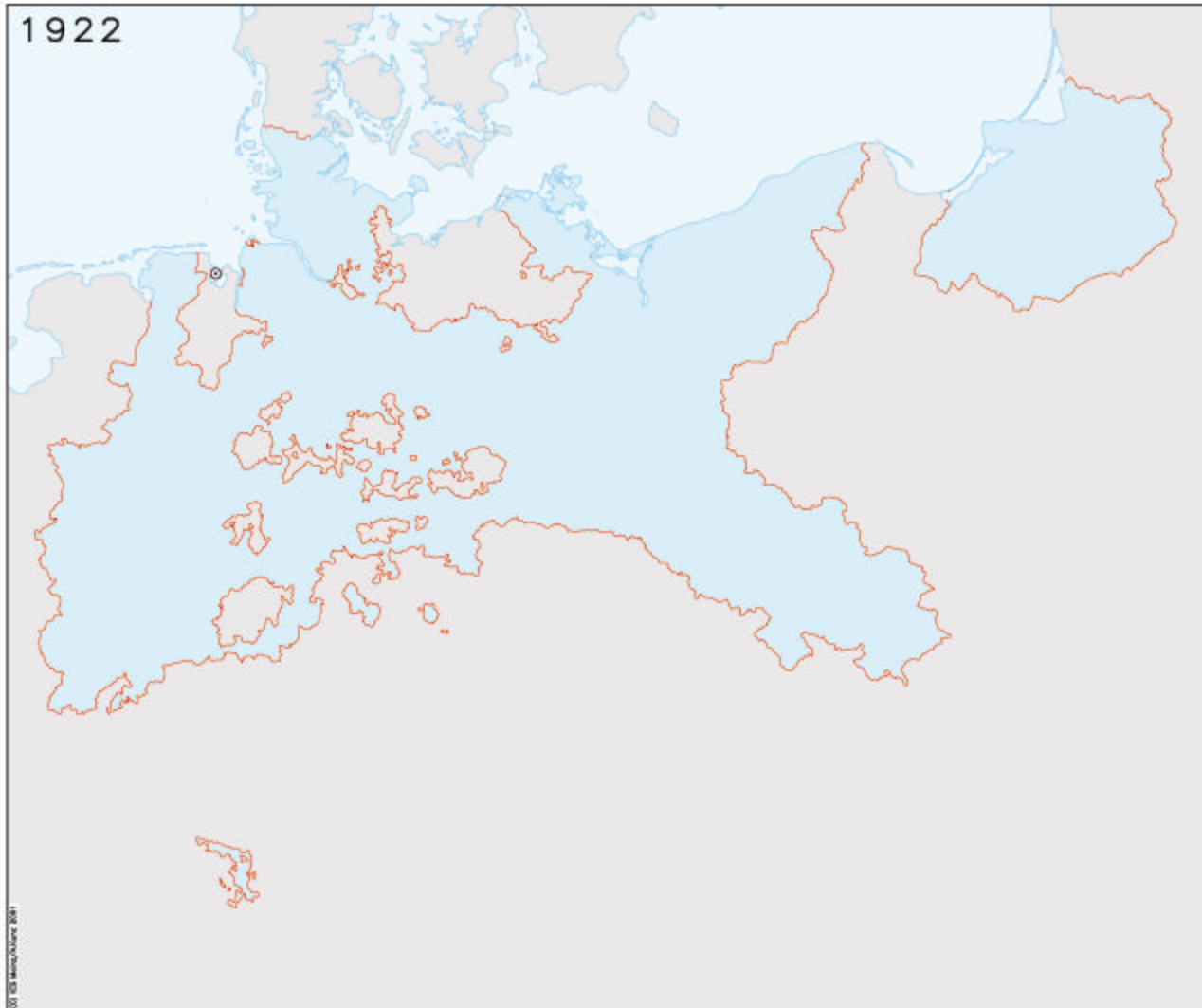
GIS-Simulation: territorial development



GIS-Simulation: territorial development



GIS-Simulation: territorial development



GIS-Simulation: Query for territorial subdivisions at level 1

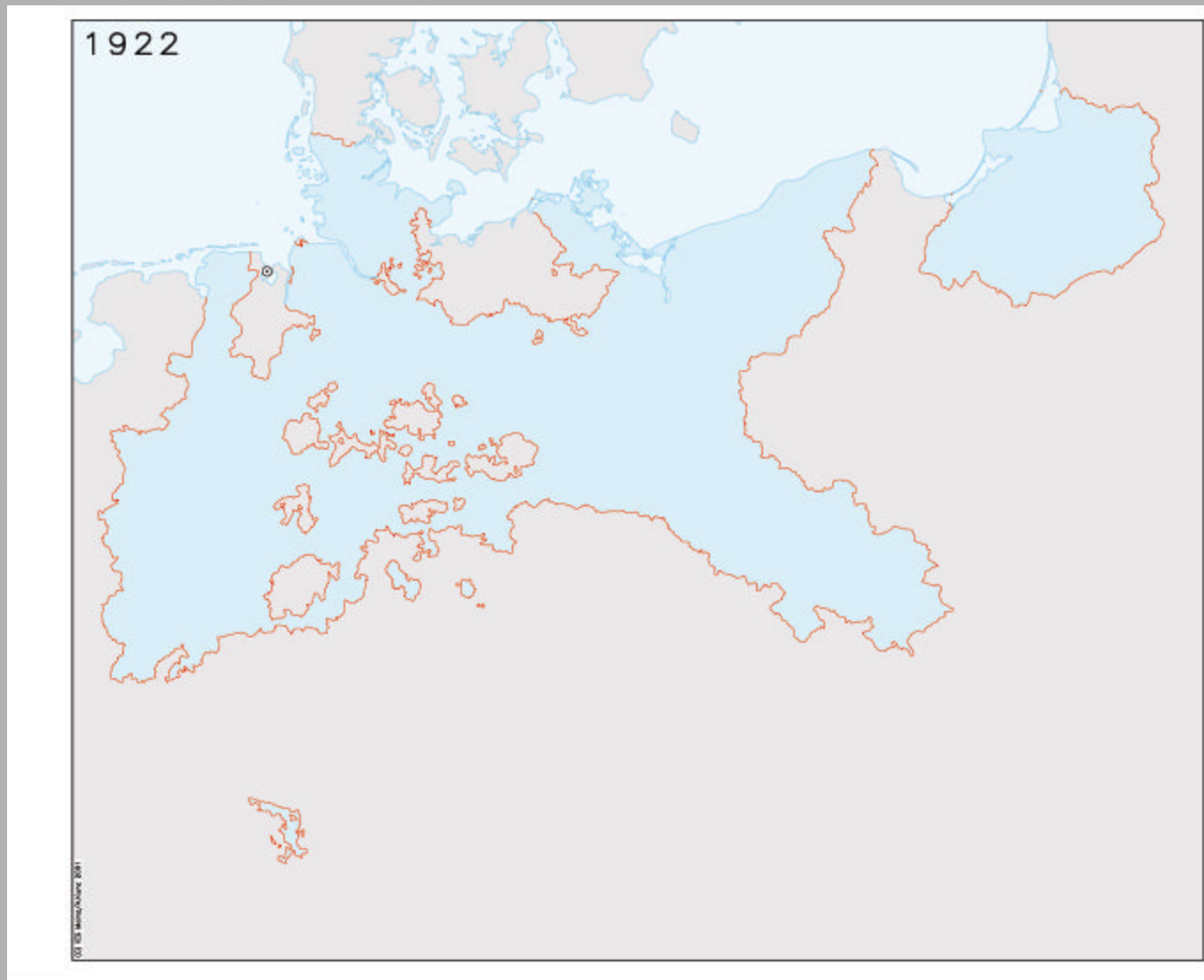
Prussia: provinces

1922

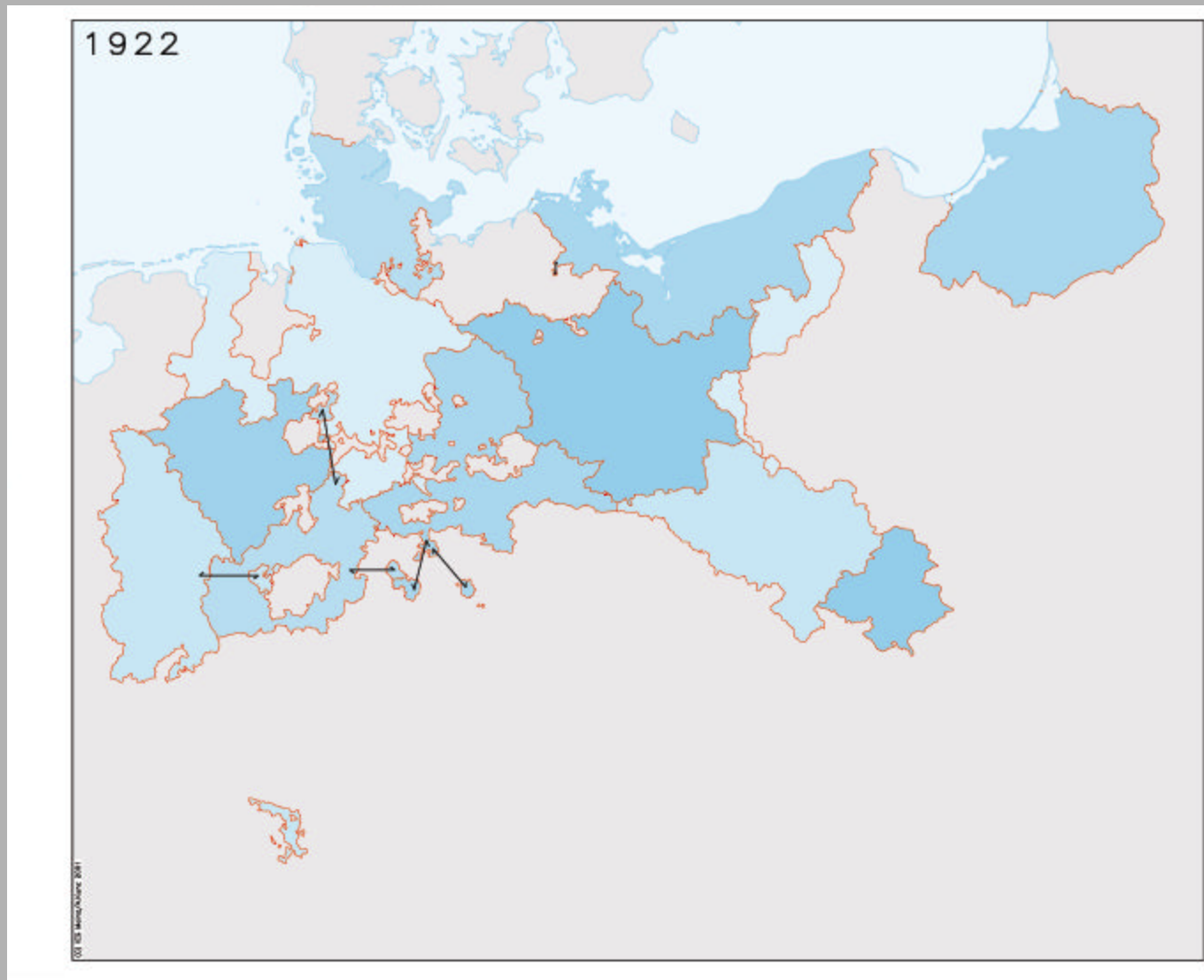
Prussia: named provinces

1922

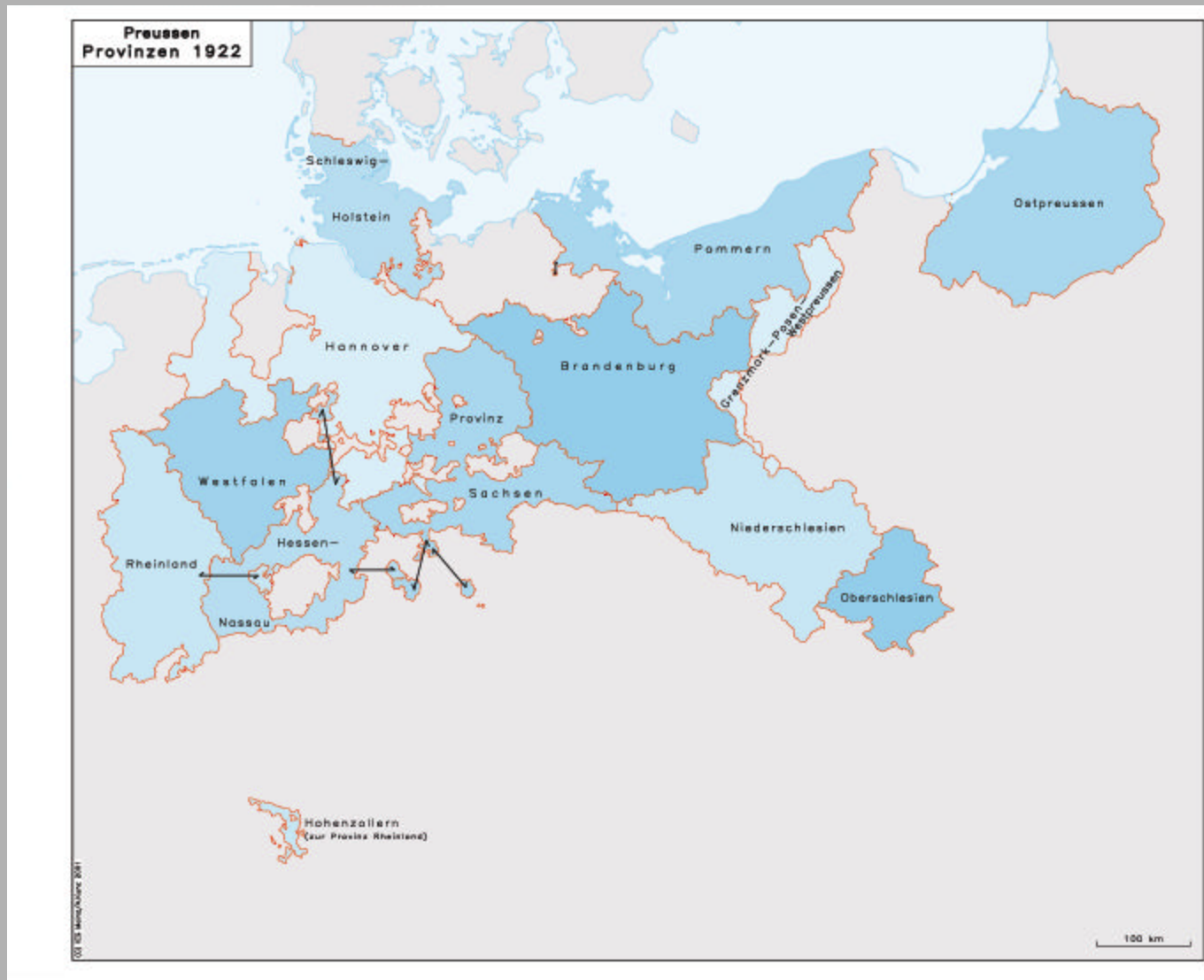
GIS-Simulation: territorial subdivisions in a given year



GIS-Simulation: territorial subdivisions (provinces)



GIS-Simulation: territorial subdivisions (named provinces)



GIS-Simulation: Query for territorial subdivisions at level 2

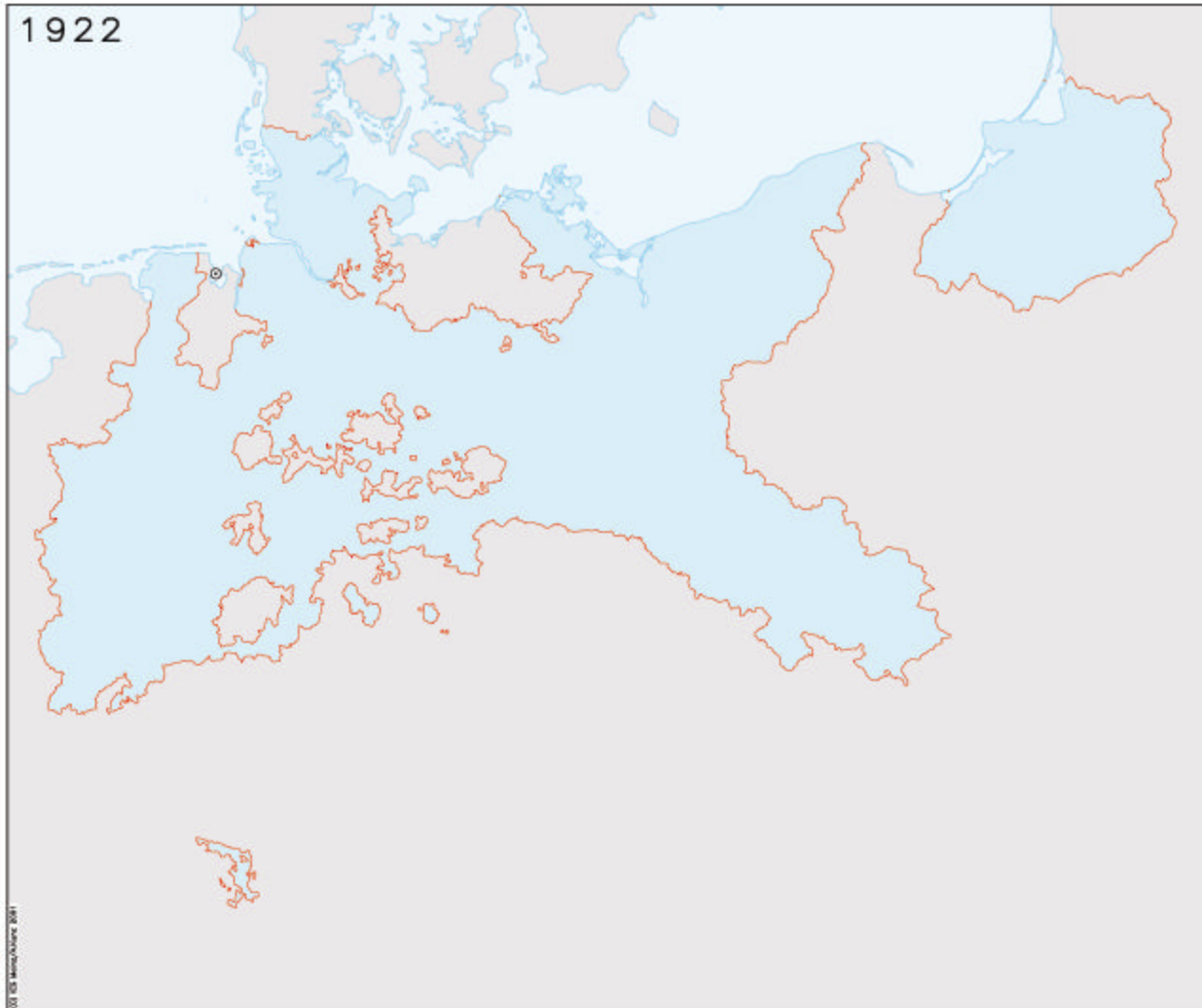
Prussia: governmental districts

1922

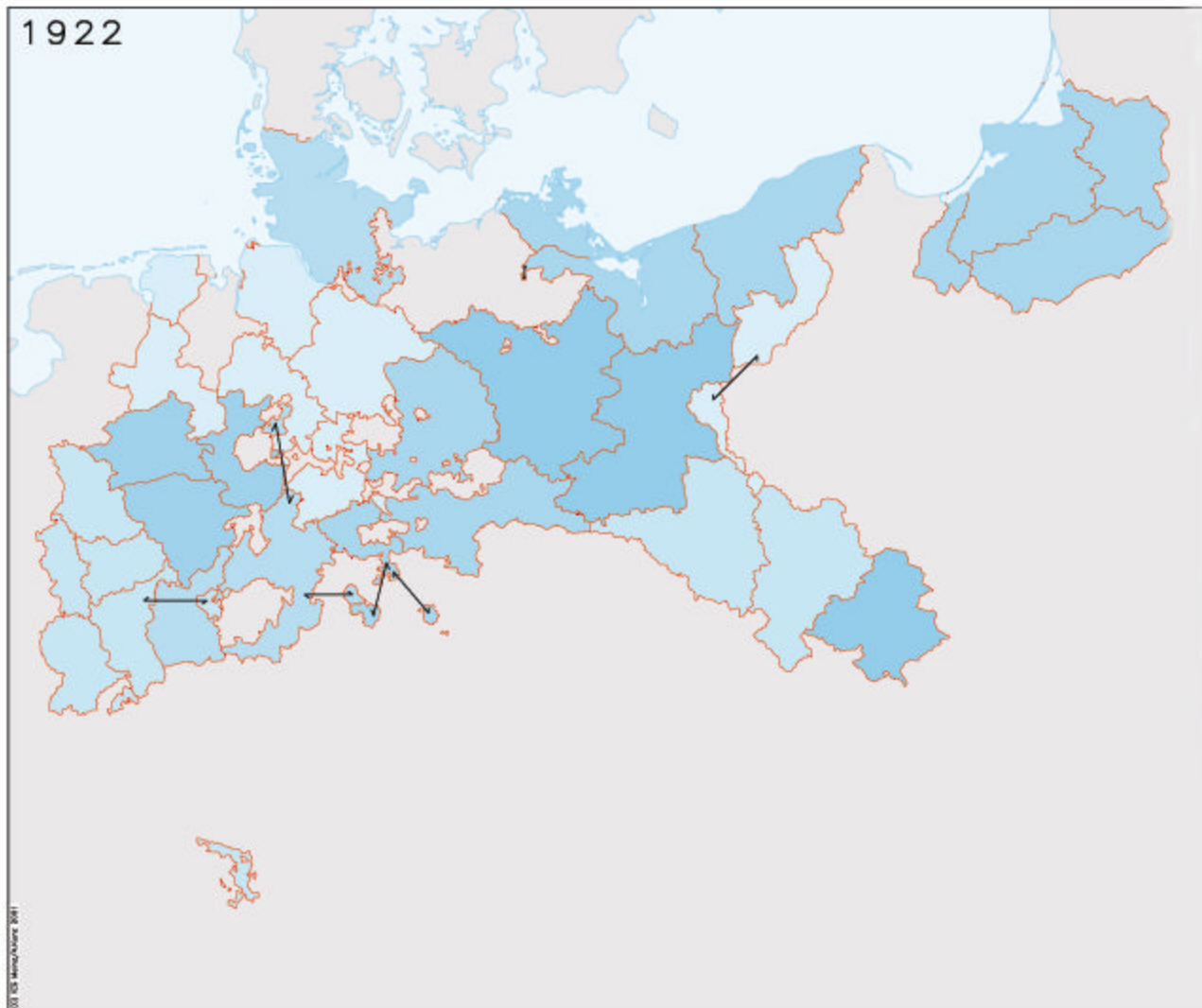
Prussia: named governmental districts

1922

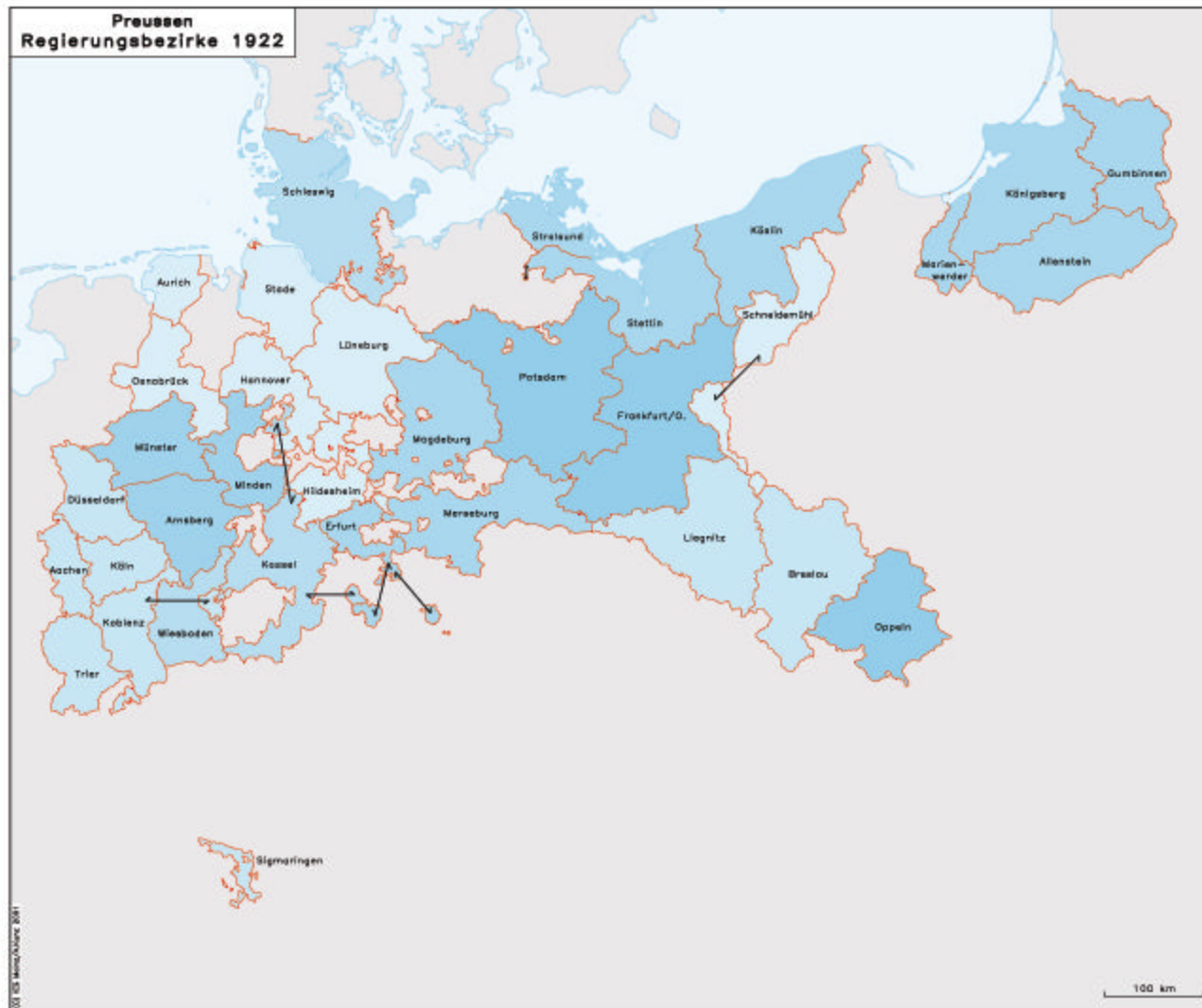
GIS-Simulation: territorial extension in a given year



GIS-Simulation: territorial subdivisions (gov. districts)



GIS-Simulation: territorial subdivisions (named gov. districts)



(2)

The Development of German railways prior to nationalization (1835 - 1880)

The German railway network:

1835: 6 km

1840: 470 km

1850: 5 850 km

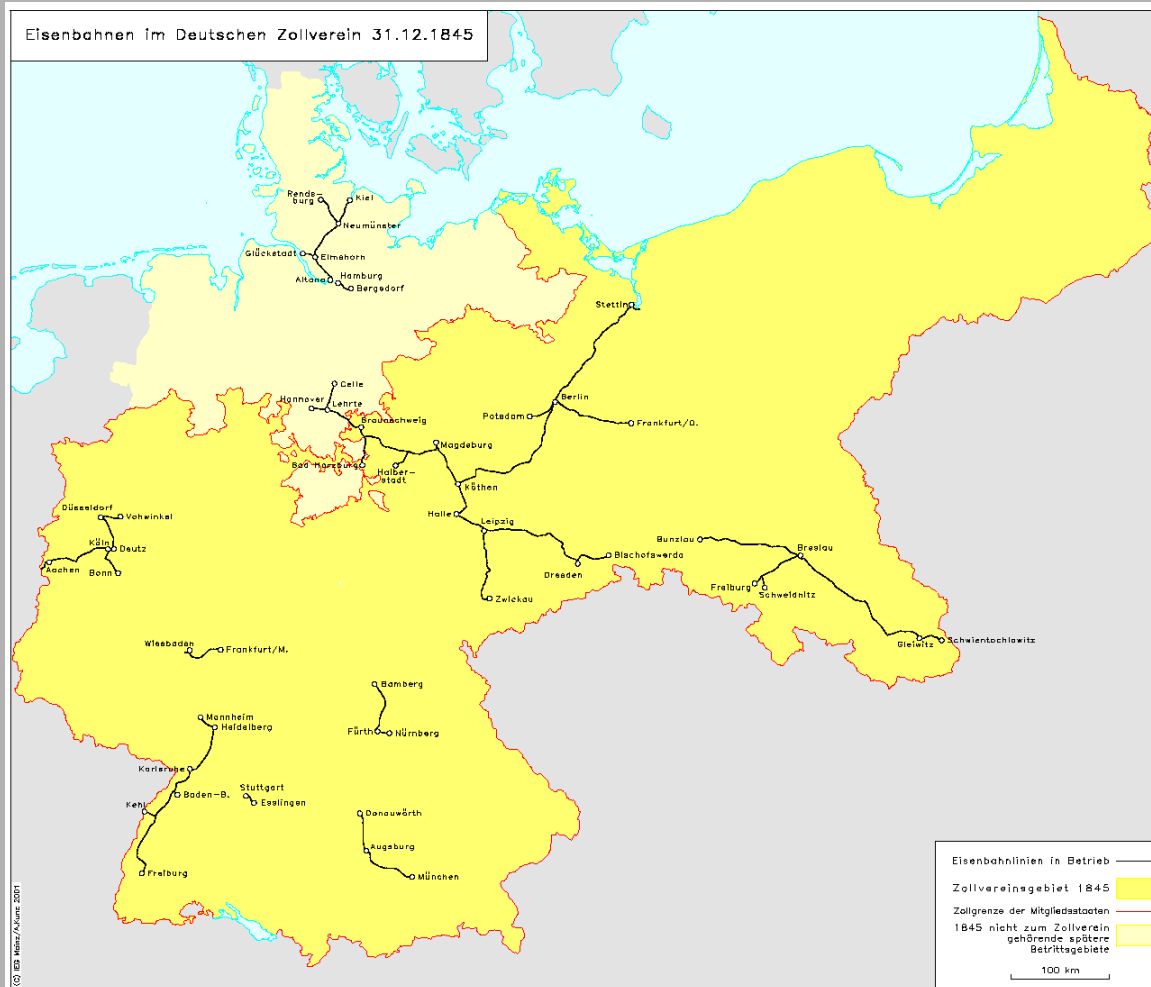
1860: 11 100 km

1870: 18 700 km

1880: 21 000 km



German railways in 1845 (from IEG-Maps)



The GIS-version will add:

by interactive request of the user gets

- name of the **lines** and of the operating **companies**
- exact **date of opening** (by segment)
- exact **length** of each line and/or segment (in km)
- superimposition of political and administrative **boundaries**
- visualization of **railway stations**
- visualization of other **towns** and **cities**
- visualization of **other lines of transport** (roads, navigations)

Thank you for your attention!

Do visit **IEG-MAPS** at

<http://www.ieg-maps.uni-mainz.de>

regularly in the future - and sign our guestbook!