Andreas Kunz
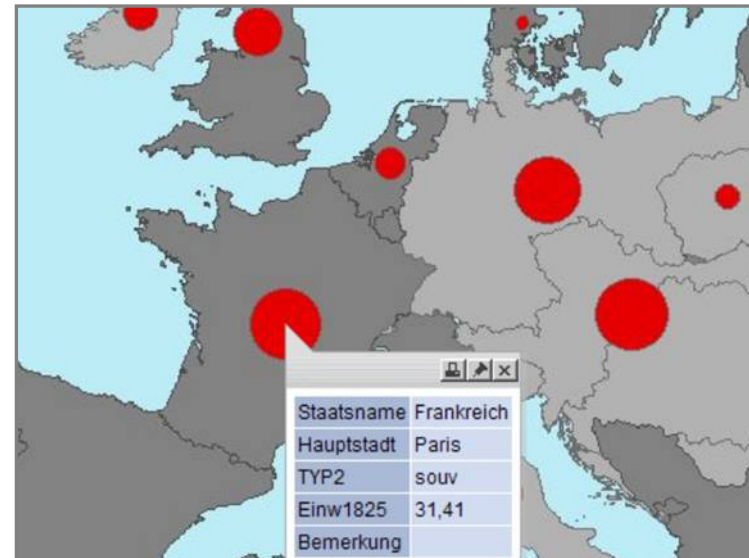
Institute of European History, Mainz, Germany

Towards a Historical GIS of Europe: State-building processes and comparative spatial statistics in a ‚Digital Atlas on the History of Europe since 1500'
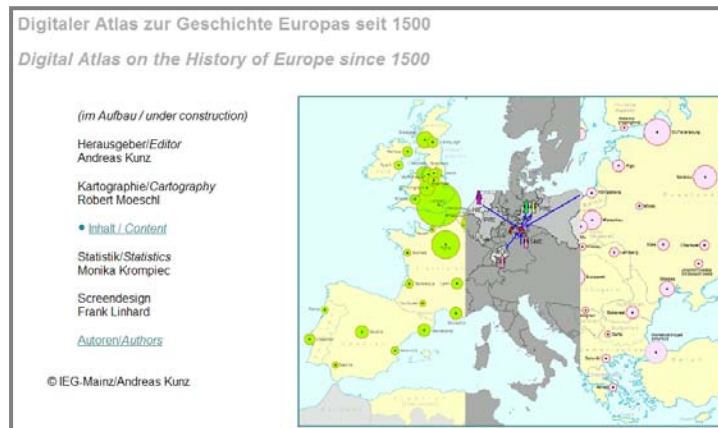
GIS in the Humanities and Social Sciences 2009
Academia Sinica, Taipei, Taiwan
October 7-9, 2009

Historical GIS on Germany in the 19th century

(completed in 2007)

Website: www.hgis-germany.de

Atlas on European history since 1500 (in progress)

Prototype: www.atlas-europa.ieg-mainz.de

Mapserver for digital historical maps on Germany and Europe since c. 1400 („living-tool" infrastructure, containing some 750 maps)

www.ieg-maps.uni-mainz.de

Outline

1. The European Atlas Project and its aims

2. Content of the GIS modules

- Basic data („sovereign" vs. „statistical" states)

3. Output of the GIS modules (examples)

- Thematic mapping

- Statistical mapping (= spatial statistics)

4. Towards an online information system
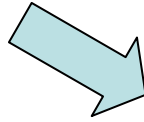
HGIS on the European State System (1825-2008)

• Generates GIS-based thematic maps and map series

• Supplies an interactive micro-information system on European states from 1825 to 2000 (perhaps on territorial developments from 1500 to 1800 as well)

• Supplies an interactive micro-information system - as well as maps - on European historical statistics from 1825 to 2000

• May eventually develop into a full-fledged online-system in its own right (HGIS EuropeanStates)
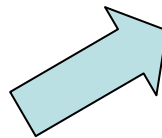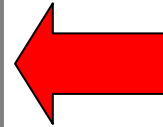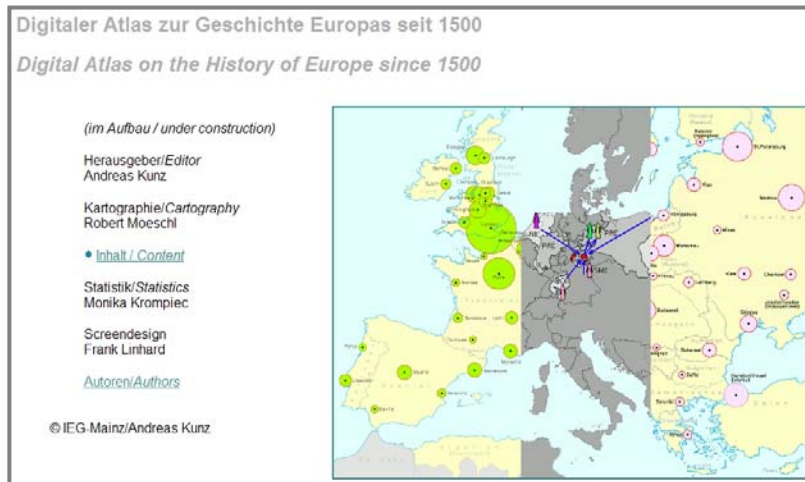
Researchers involved:

Manuel Schmuck (Mainz) – GIS work

Monika Krompiec (Mainz) – Statistics

Robert Moeschl (Berlin) – Basic digitization

Some technical information:

ArcGIS 9.3 is used as the principal software

Supplementary:

• ImageMapperN2, to generate HTML files

• Excel 2003 to generate attribute tables

• Themak2, a digital mapping program, has been used for basic digitization.

• Themak2-files have been converted into SHP-format using a related *Themap*-software package plus a conversion tool developed in connection with HGIS Germany.
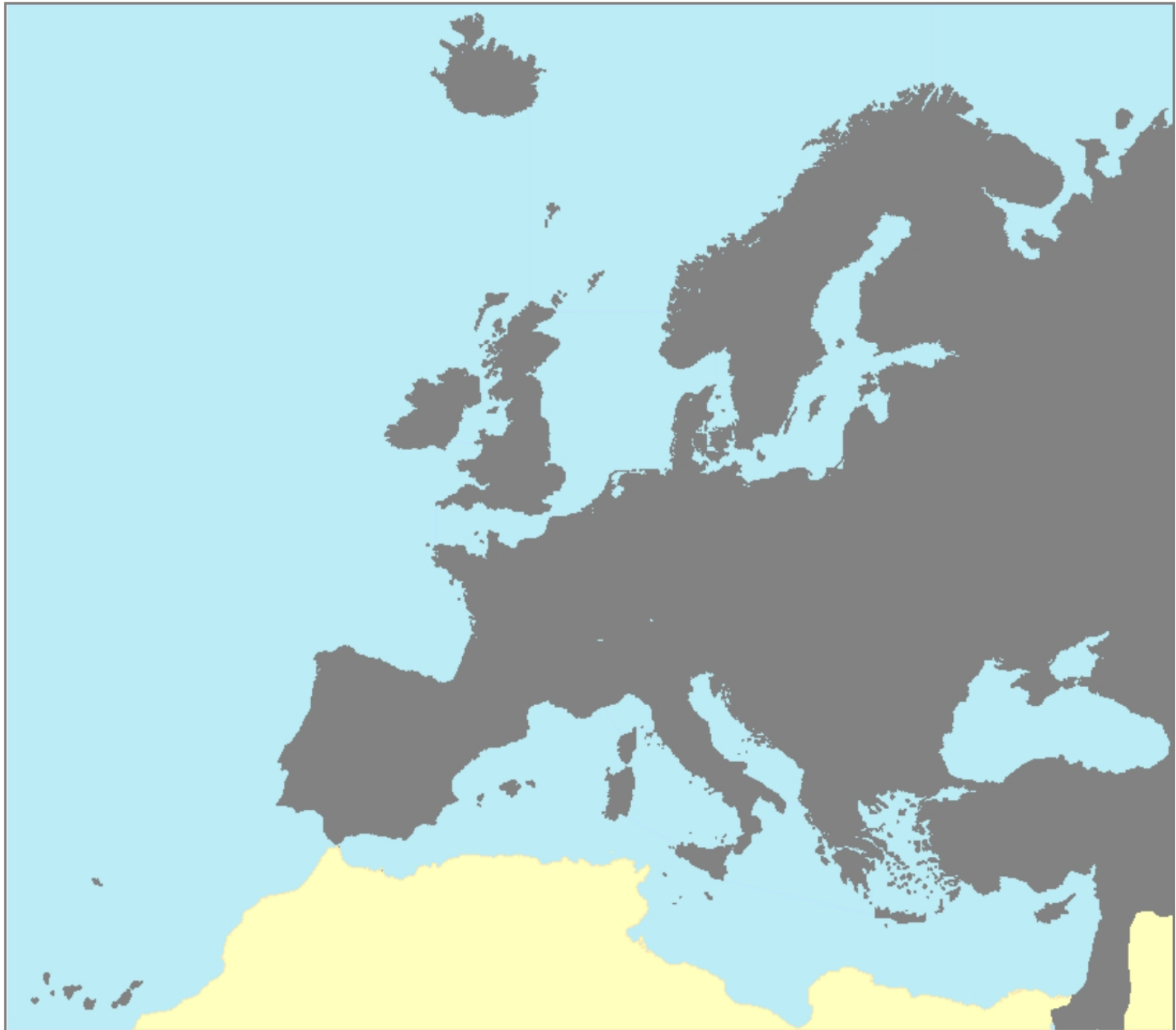
The European State System: 1820 vs. 2007

Number of sovereign
states in Europe,
1825-2008

Sovereign States of Europe 1825-2008
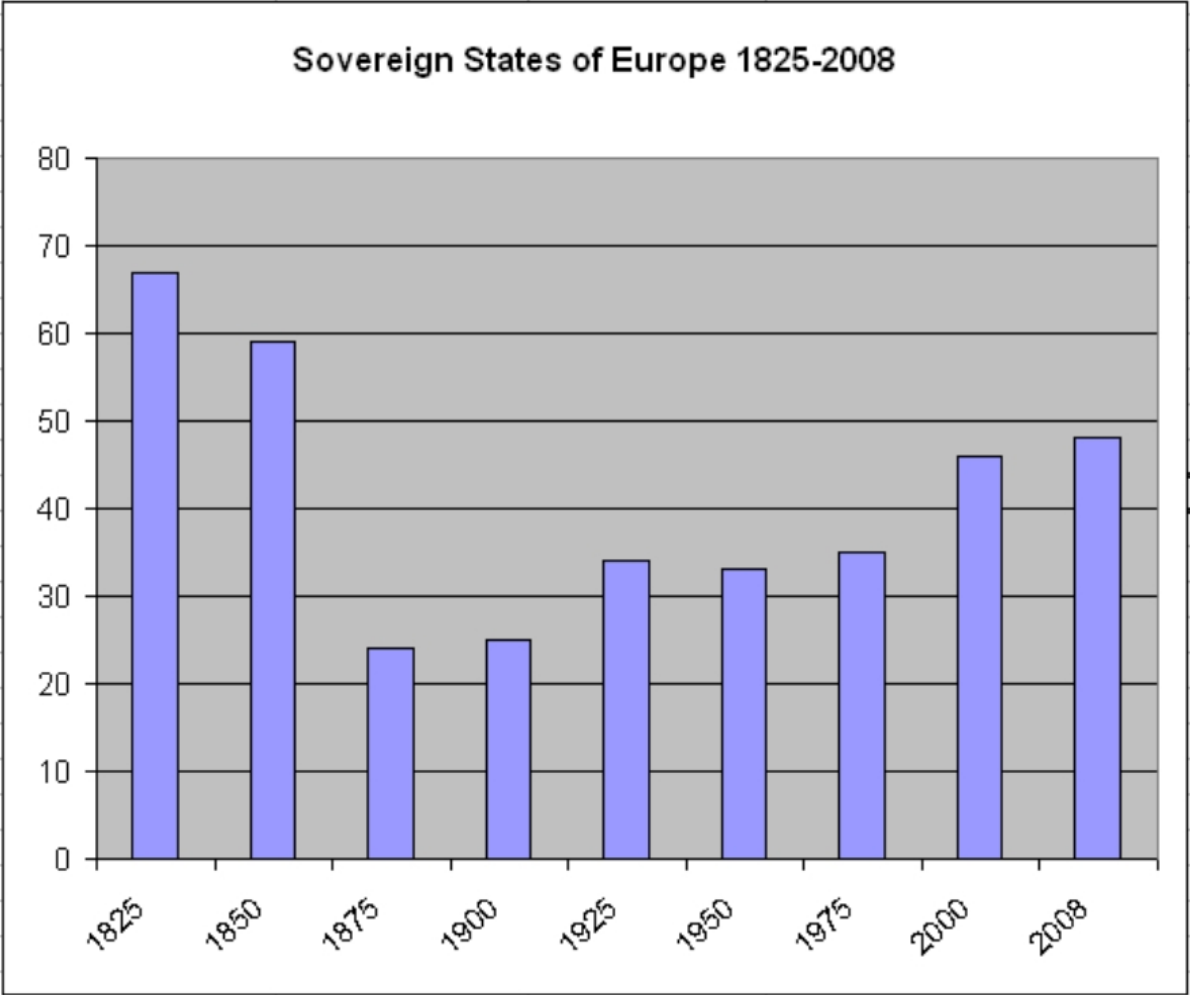
Grey:

Area covered by HGIS Europe

Basic data:

1)

Historical boundaries – as polygon/area information - of all **sovereign European states** since 1825, using 9 benchmark years:

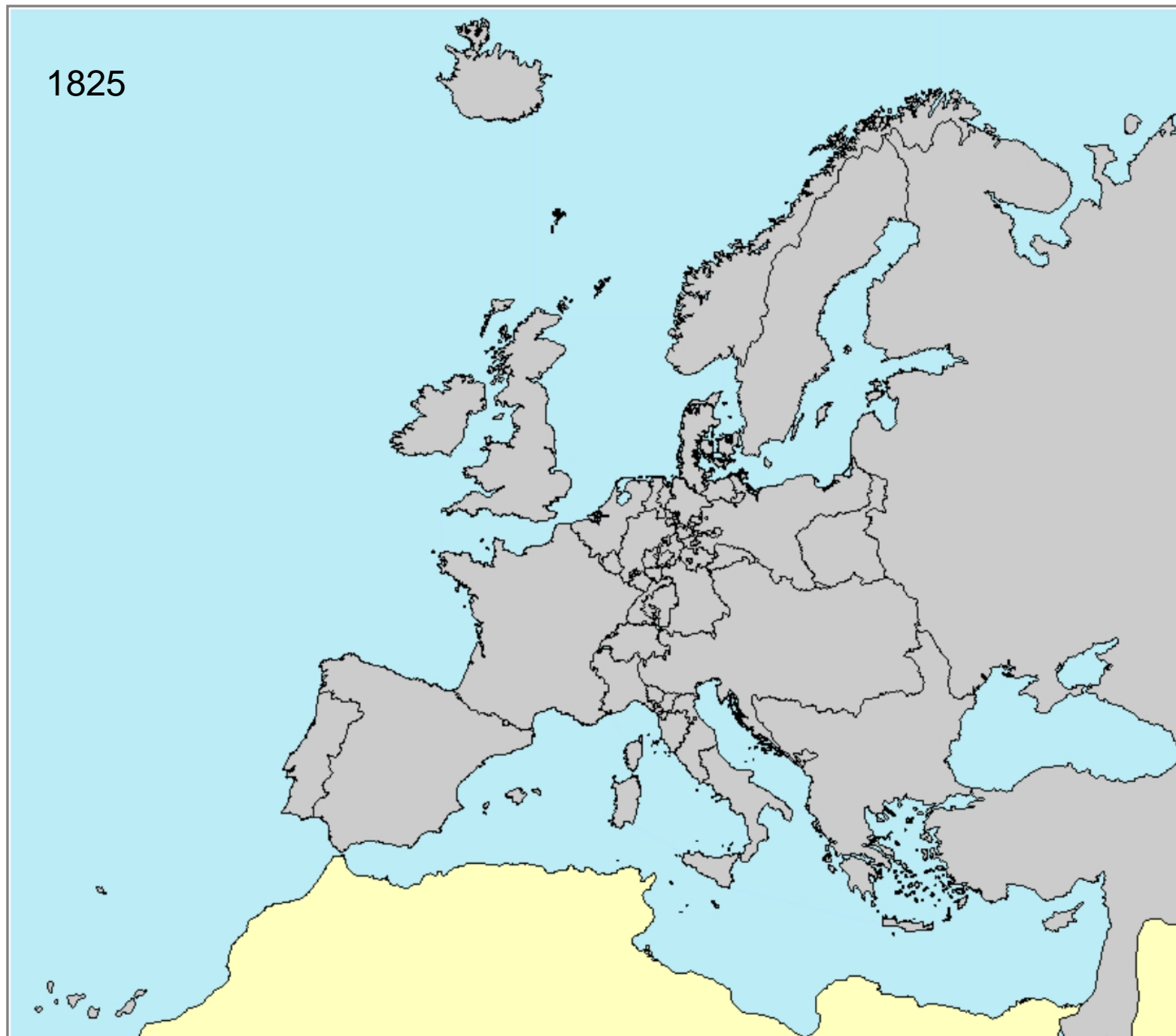1825 – 1850 – 1875 – 1900 – 1925 -1950 – 1975 – 2000 – 2008

2)

Boundaries – and polygon/area information - of a number of **„statistical states"**, using the same nine benchmark years.

3)

Capitals of sovereign states and of „statistical states"

Basic data:

Boundaries of a given year

1825

Basic data:

Boundaries
for 2
benchmark
years:

1825

2008
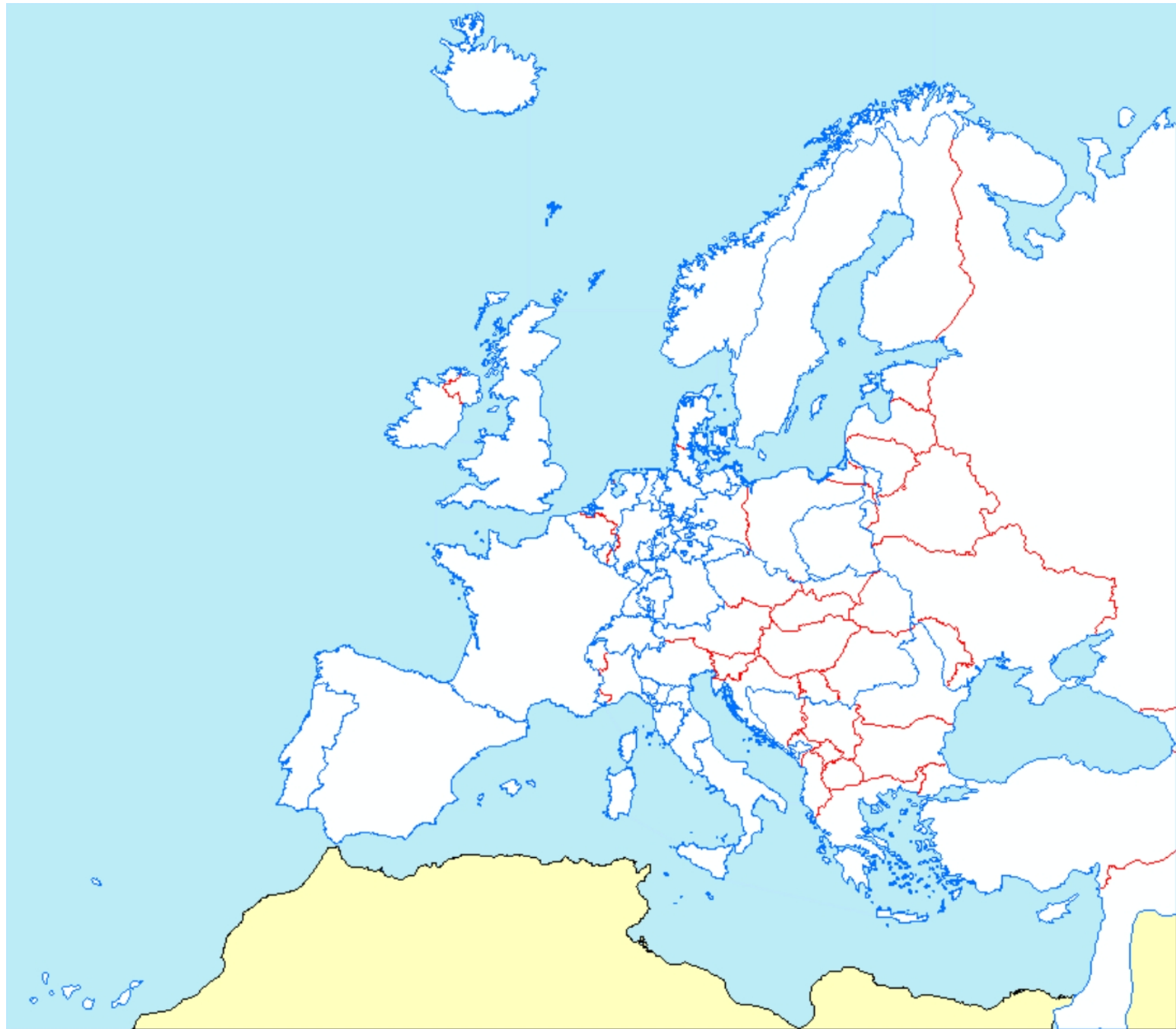
Basic data:

„Polygon information"
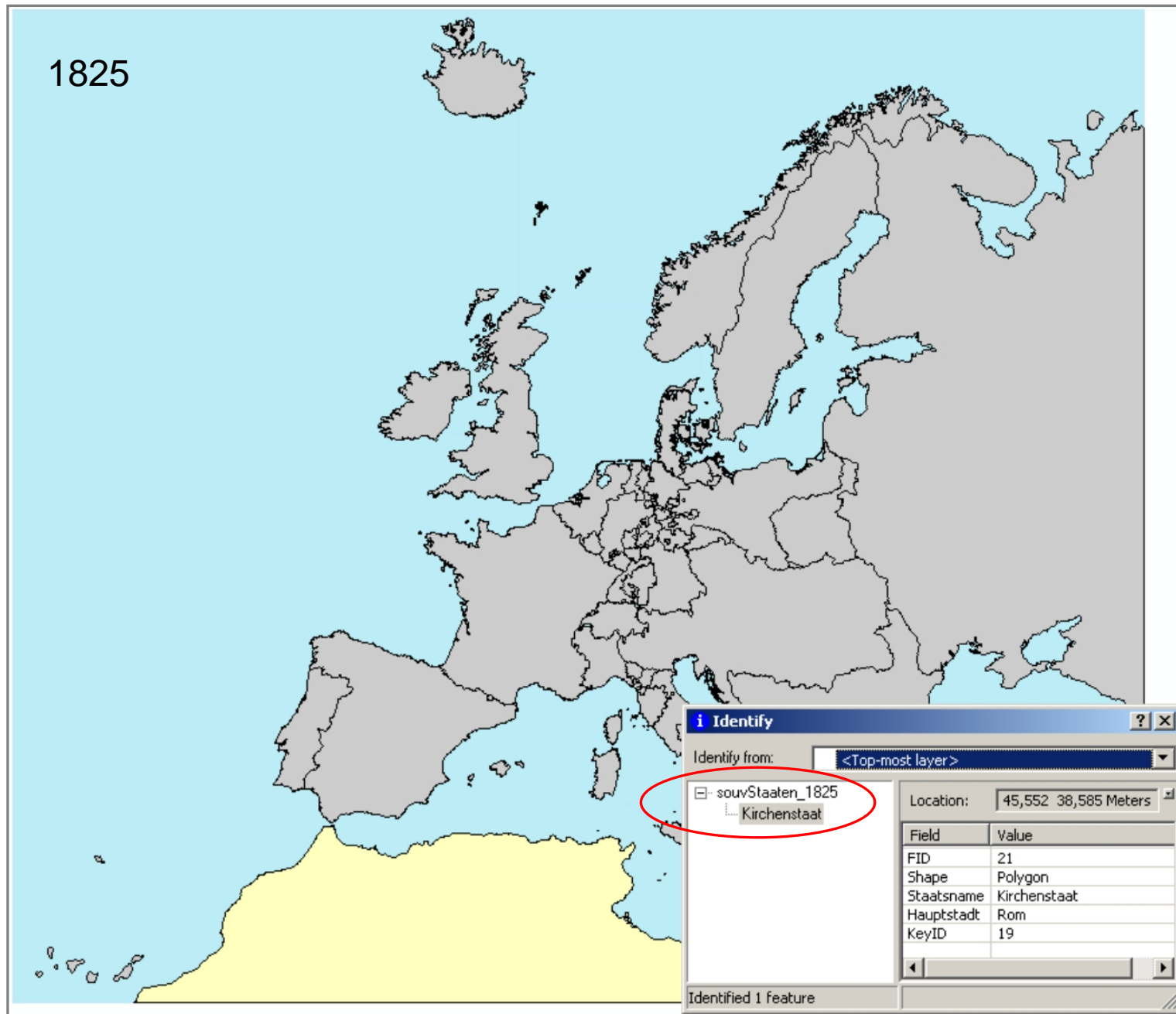
European States, 1825-2008				
a) sovereign States				
Year	Total	in GIS	not in GIS	Remarks
1825	67	50	17	Visible only within larger territorial units and as capitals
1850	59	48	11	Visible only within larger territorial units and as capitals
1875	24	24	0	
1900	25	25	0	
1925	34	34	0	In addition 4 mandate areas
1950	33	32	0	In addition 3 mandate areas
1975	35	35	0	Vatican City by zoom
2000	46	46	0	Vatican City by zoom
2008	48	48	0	Vatican City by zoom

HGIS Europe: Datasets "Sovereign States"- Series

Dark blue:
states in GIS

Basic data:

„Statistical
States"

Key
souv
stat
n.a.
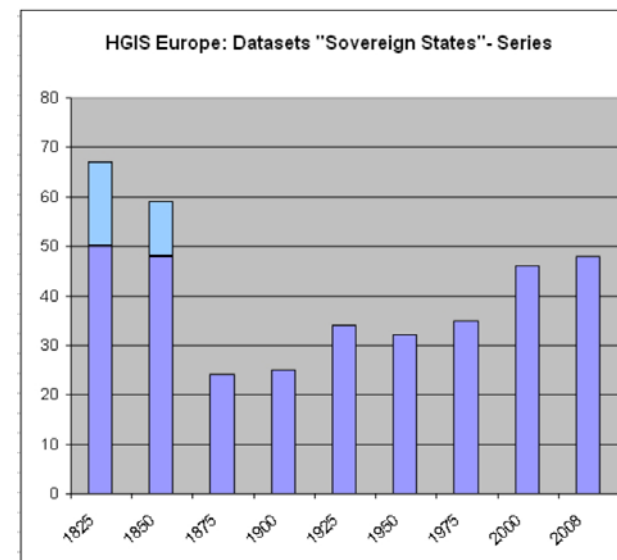
1825

b) Statistical States				
Year	Statistical	Sovereign	Total	Statistical States
1825	11	17	28	Denmark, Finland, Germany, Great Britain, Ireland, Iceland, Italy, Austria-Cisl., Poland, Serbia, Hungary
1850	10	18	28	Denmark, Finland, Germany, Great Britain, Ireland, Iceland, Italy, Austria-Cisl., Serbia, Hungary
1875	7	22	29	Denmark, Finland, Great Britain, Ireland, Iceland, Austria-Cisl., Hungary
1900	8	21	29	Denmark, Finland, France, Great Britain, Ireland, Iceland, Austria-Cisl., Hungary
1925	4	33	37	Denmark, Iceland, France, Cyprus
1950	2	33	35	France, Cyprus
1975	0	35	35	
2000	0	46	46	
2008	0	48	48	

Blue: „statistical states"
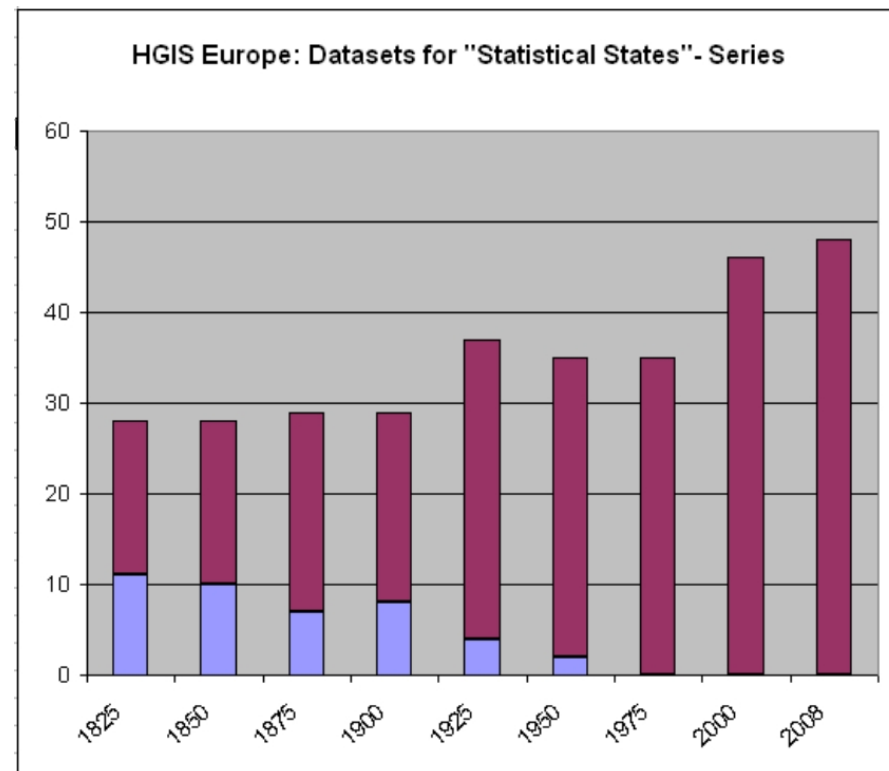
HGIS Europe: Datasets for "Statistical States"- Series

<u>Point information</u>

- Capitals (of sovereign states), by benchmark year

- Capitals (of statistical states), by benchmark year

- Provincial capitals, by benchmark year

- Previous capitals (before 2008 and up to 1825), summarized

- Territorial centers (before 1825), summarized

Capitals of
sovereign
states,
1825

1825
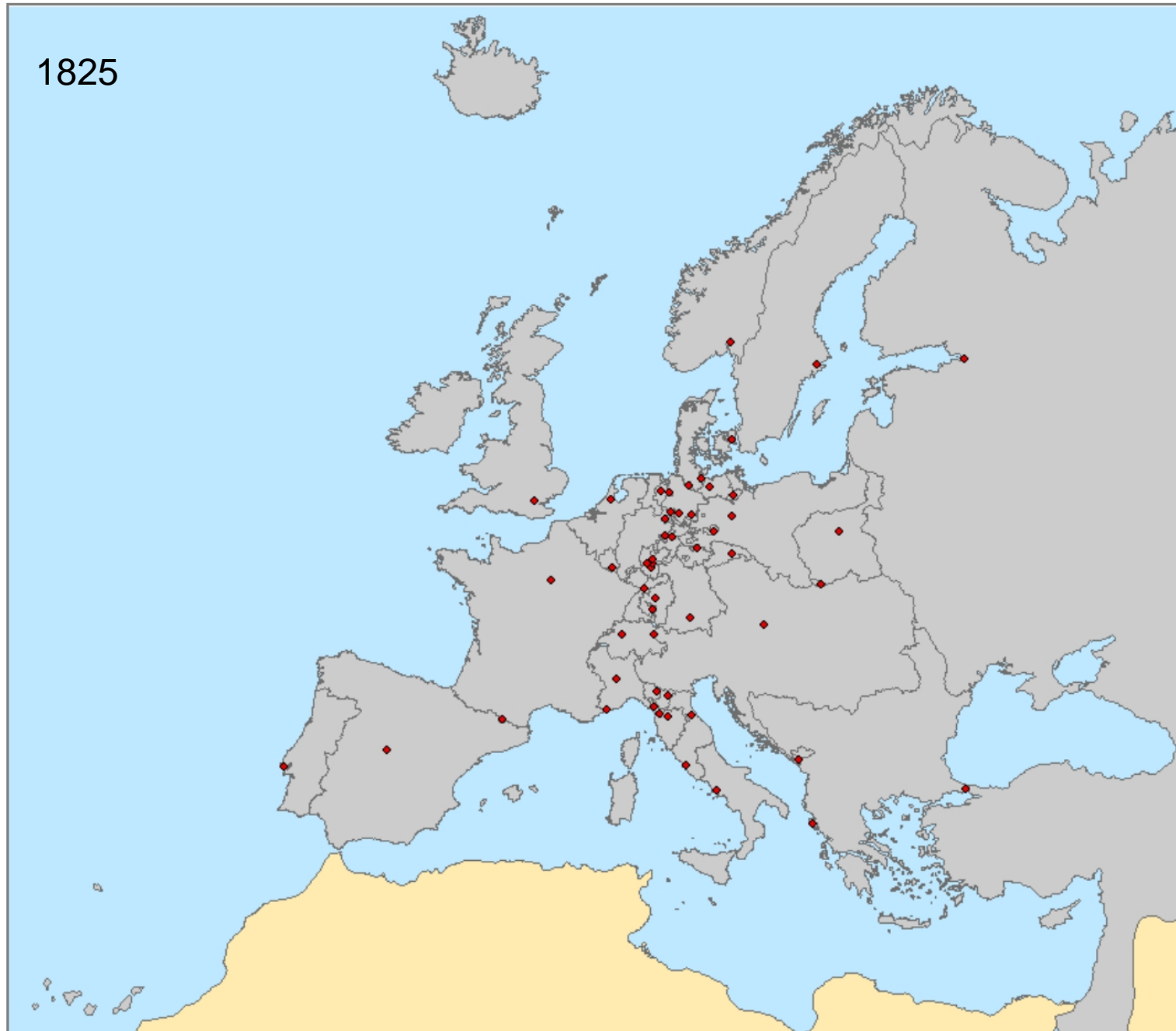
Capitals

-Present 2008 (red)

In addition:

- Former, i.e. between 2007 and 1820 (violet)
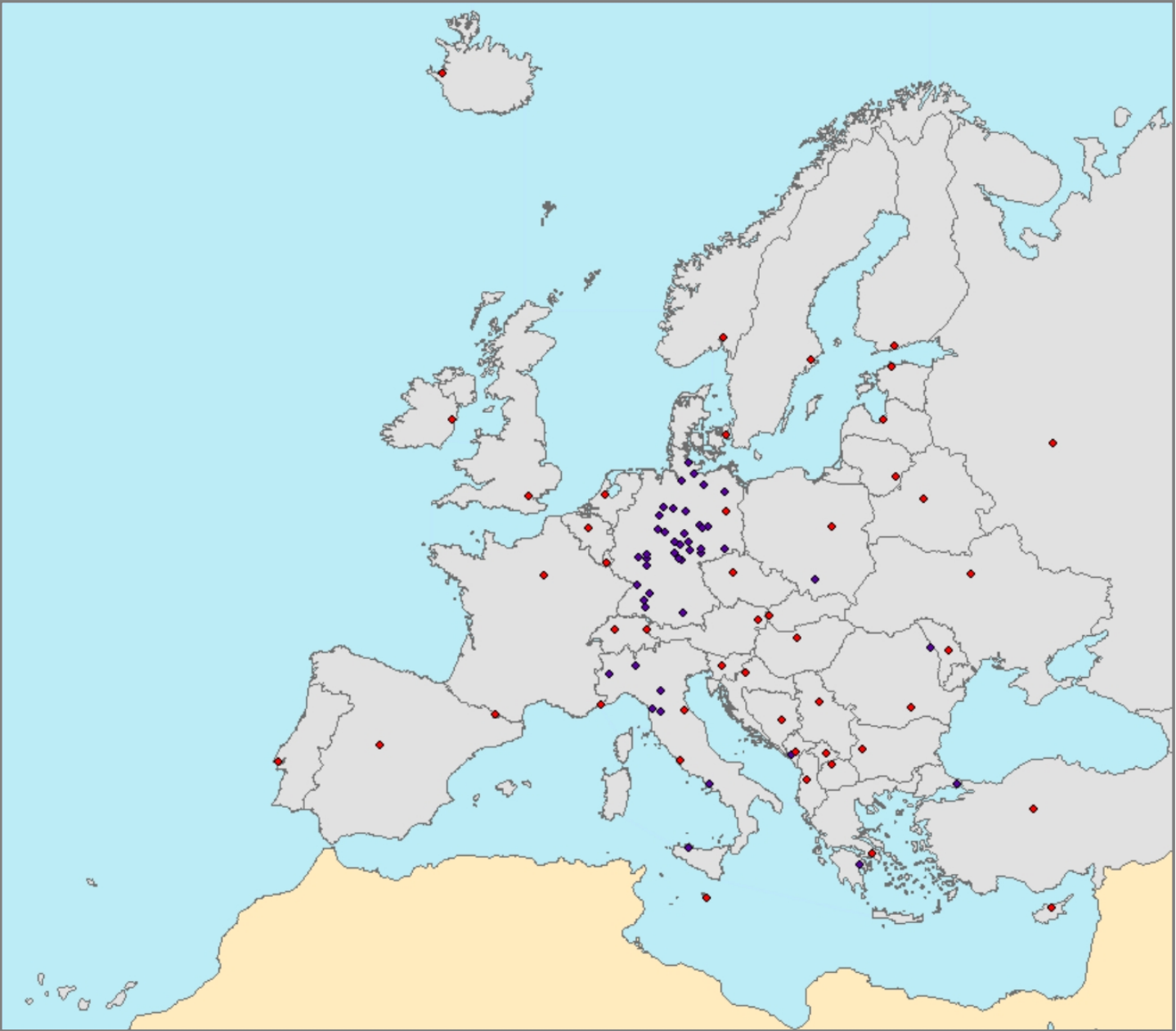
Capitals and territorial centers

-in 2008 (red)

Additionally:

- between 2007 and 1825 (violet)

Additionally:

- before 1825 (green)
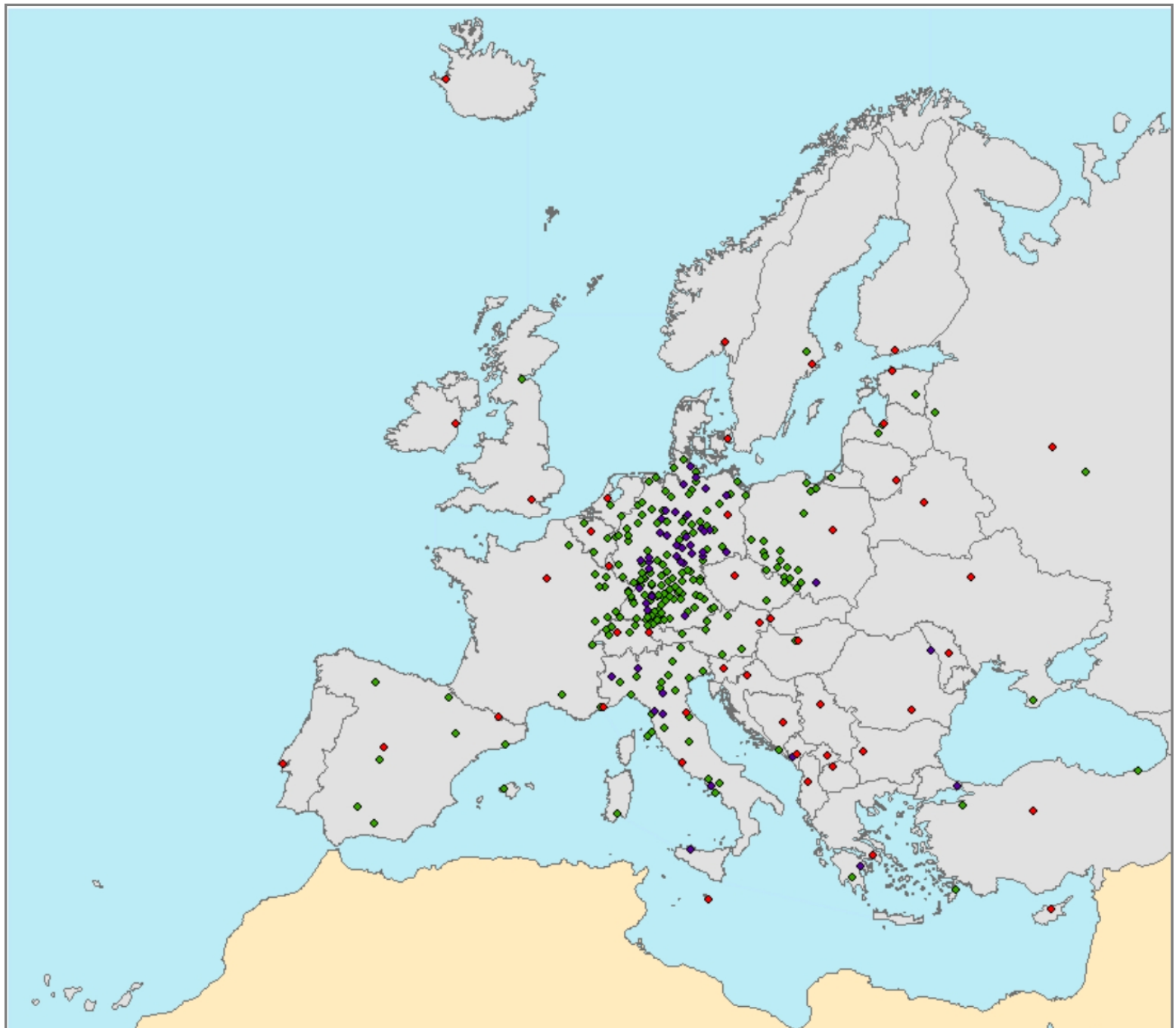
Thematic mapping:

1) Economic interaction between states

• Monetary unions in 1900

2) Military interaction between states

• Military alliances in 1975

• NATO members, 1949-2009

3) Attributes of European states

• Form of government, 1825-1935

Monetary
Unions, 1900

☐ ☑ souvStaaten_1900
  ☐ Staaten
  MonUnions
  ☐ ALMU
  ☐ LMU
  ☐ SMU

1900

Oslo
Stockholm
Sankt Petersburg
Kopenhagen
London
Amsterdam
Berlin
Brüssel
Luxemburg
Paris
Bern Vaduz
Wien
Andorra
Monte Carlo
San Marino
Belgrad
Bukarest
Madrid
Cetinje
Sofia
Lissabon
Rom
Konstantinopel
Athen

Military alliances
and the division
of Europe, 1975
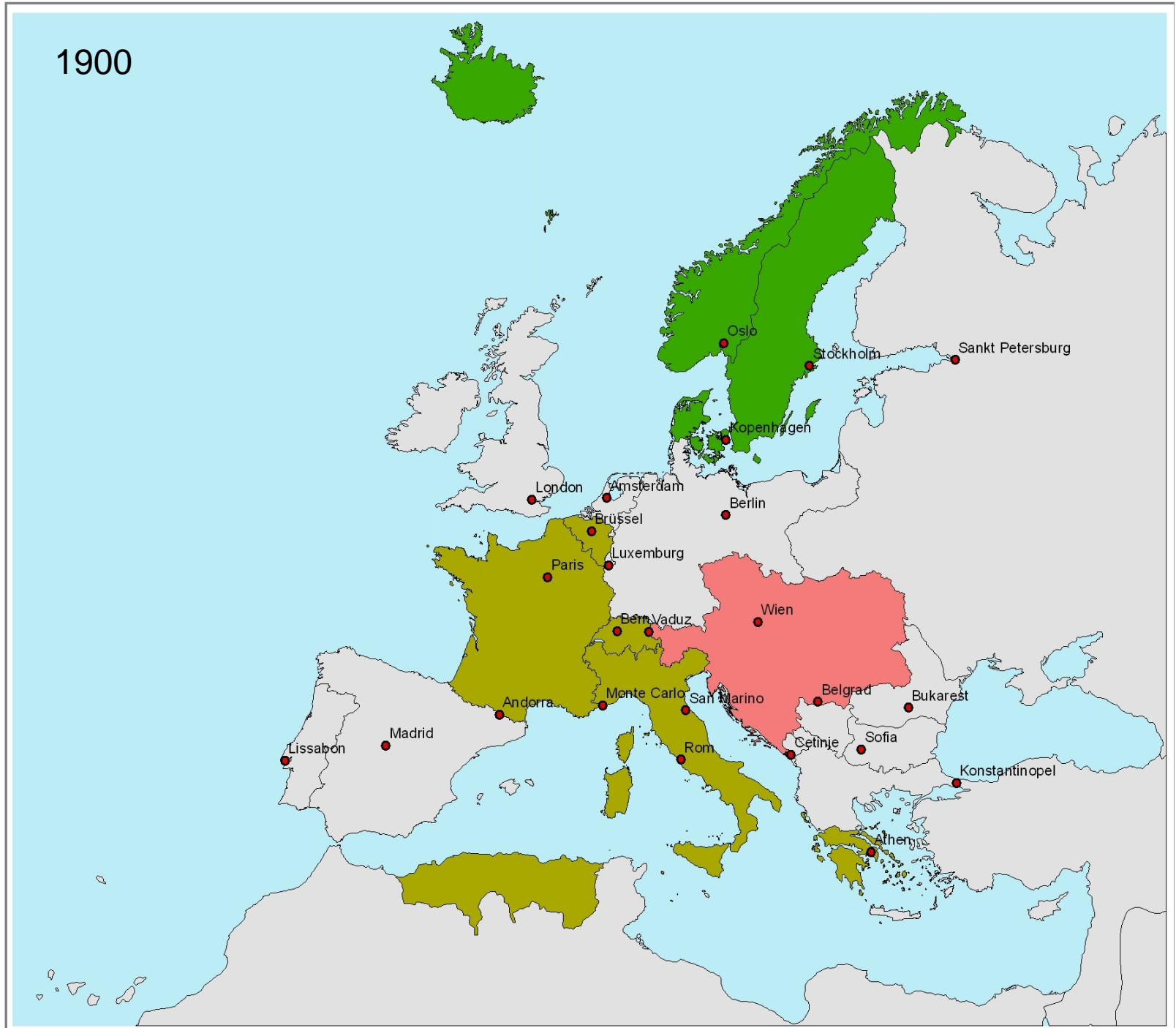
1975

☑ souvStaaten_1975
Military Alliances
■ NATO
■ Warsaw Pact
■ Non aligned countries
■ Not obeserved
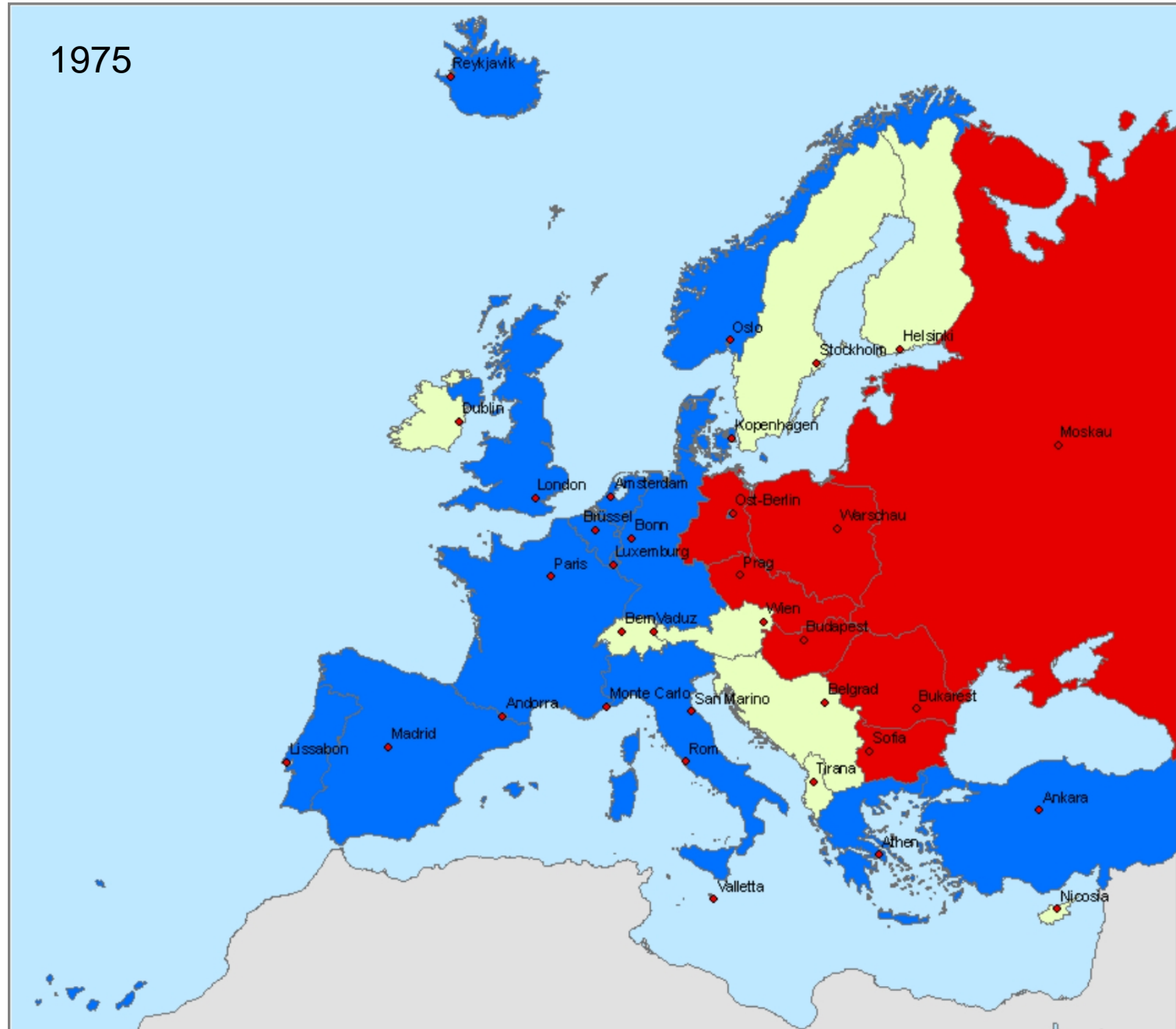
European Members
of NATO, 1949-2009

Year of joining
- 1949
- 1952
- 1955
- 1982
- 1999
- 2004
- 2009
- Non-Members
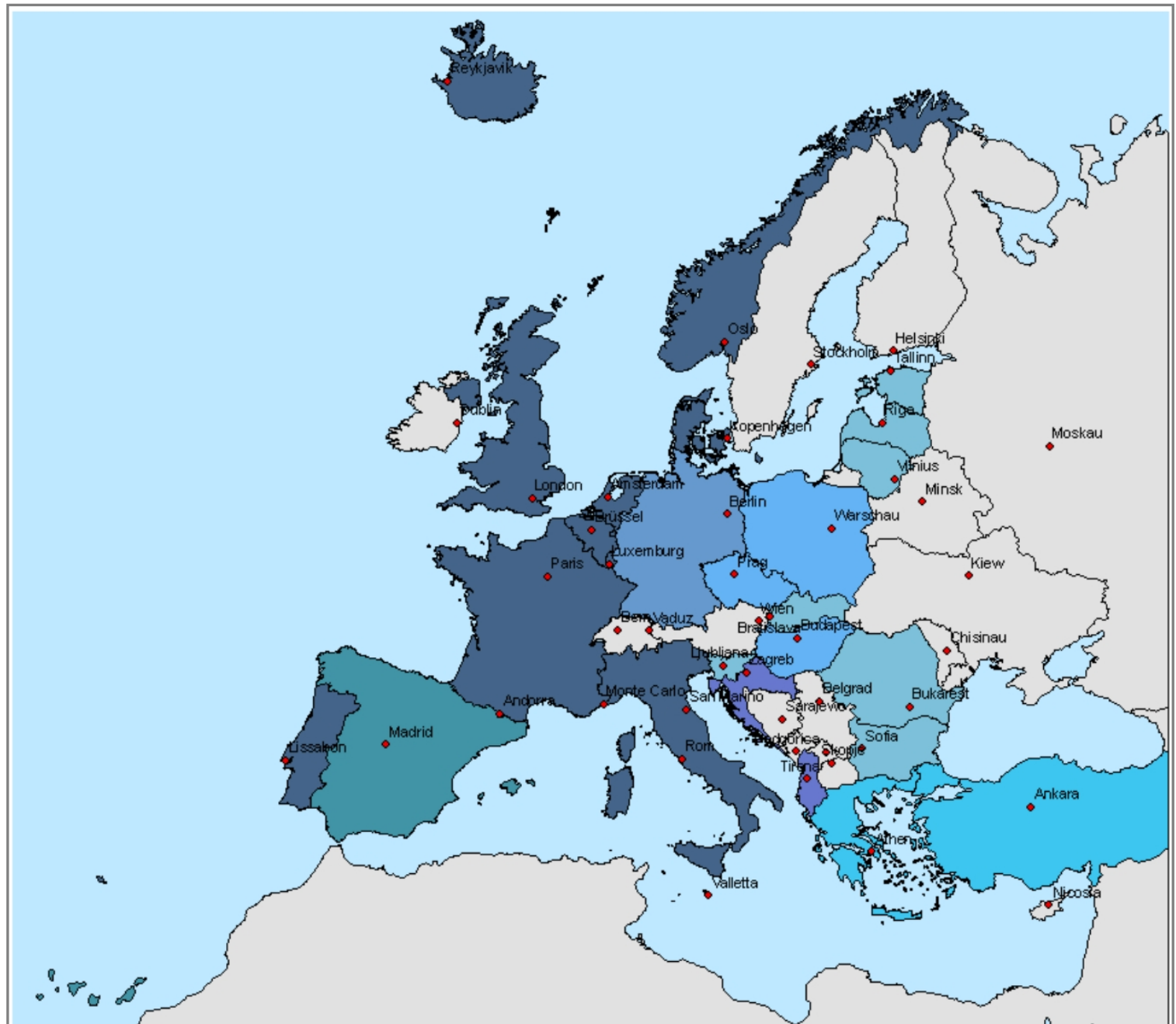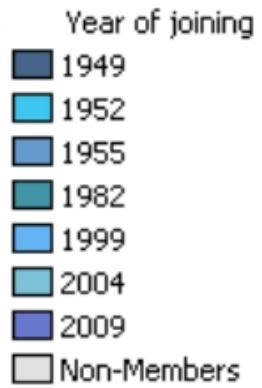
Forms of
Government,
1825-1935

souvStaaten_1925

TYP1

mon
rep
dic
na

1825

1900

1925

1935
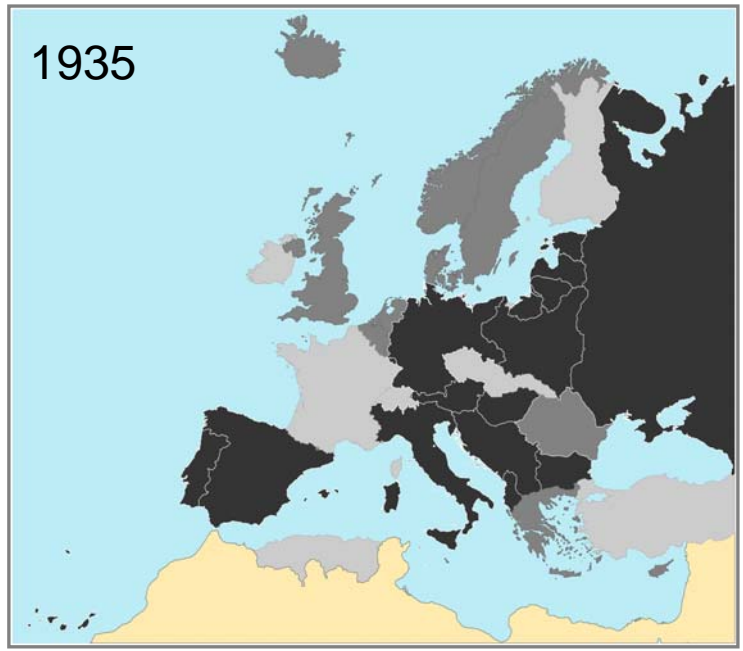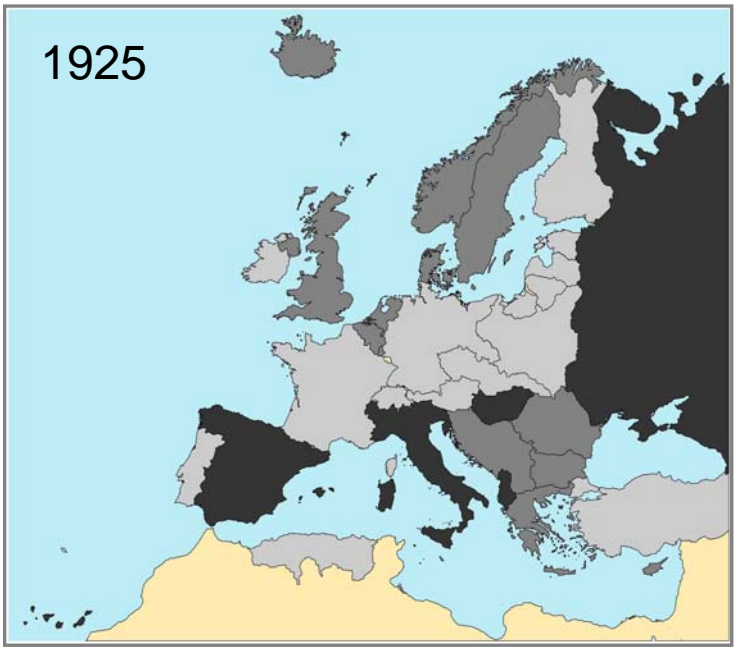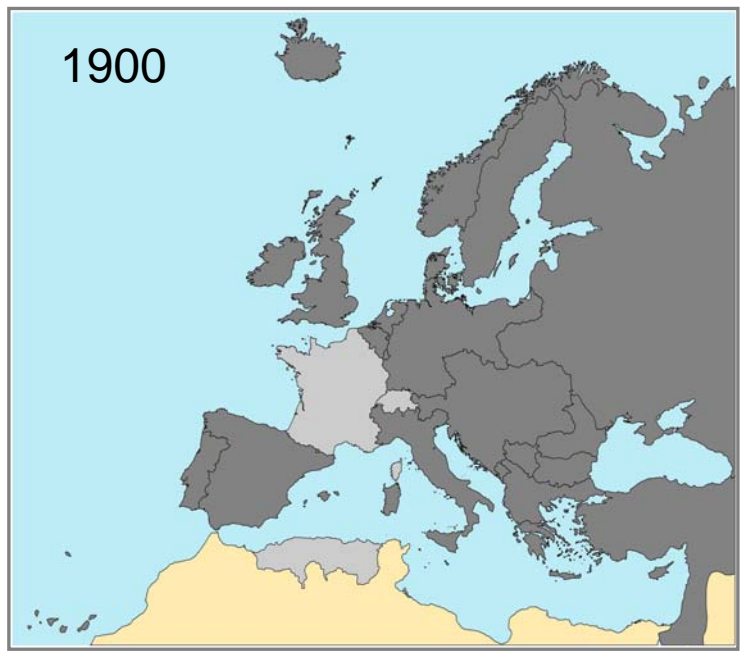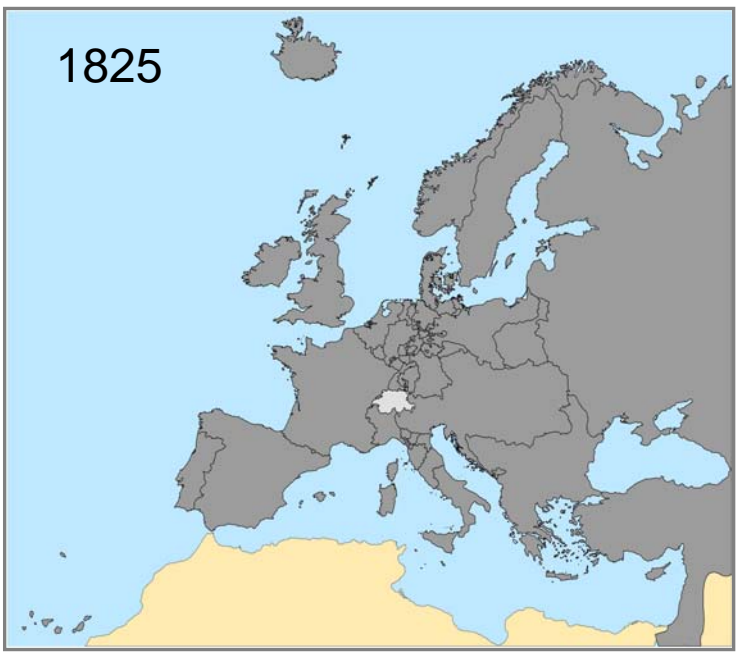
Spatial Statistics

Main source: B.R. Mitchell, European Historical Statistics (2003)

Main rubrics:

• Population [-> Sample]

• Agriculture

• Industry

• Transport

• External Trade

• National Accounts

Inhabitants of
select European
countries, 1825
(in millions)

Flächen

- souveräner Staat
- "Statistikstaat"
- nicht beobachtetes Gebiet

Diagramme

30

Einw1825
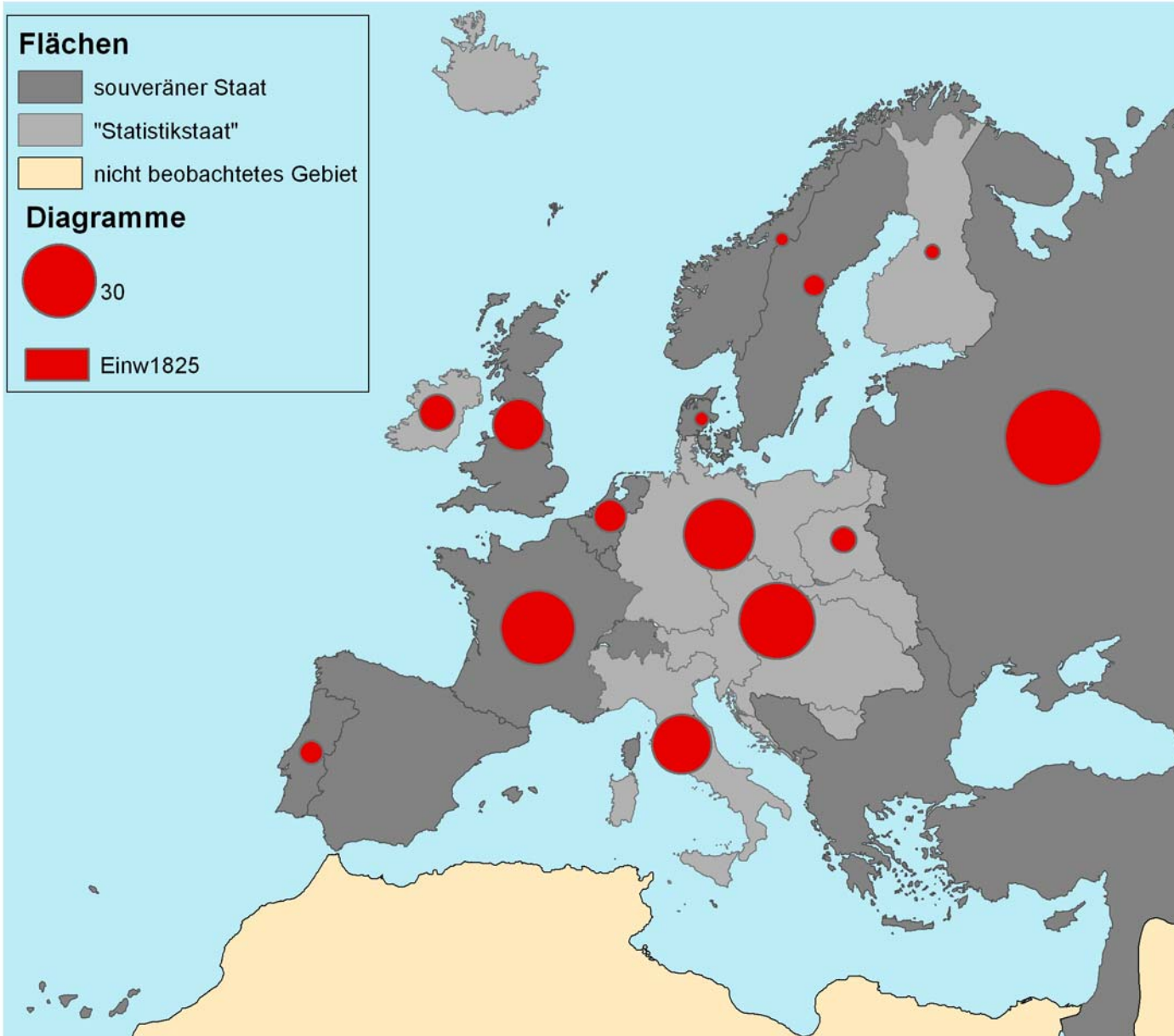
WebMap: Inhabitants of select European countries, 1825 (in millions)

Flächen: Staatsname

Andorra
Dänemark
DR in den Grenzen von 1871 ohne Elsass-Lothringen
Finnland
Frankreich
Großbritannien
Ionische Inseln
Irland
Island
Italien in den Grenzen von 1870
Krakau
Liechtenstein
Luxemburg
Monaco
Montenegro

Flächen

souveräner Staat
"Statistikstaat"
nicht beobachtetes Gebiet

Diagramme

30

Einw1825

Staatsname	Frankreich
Hauptstadt	Paris
TYP2	souv
Einw1825	31,41
Bemerkung	

Production of Iron Ore, Pig Iron and Steel, 1900 (in 1000 metric tons)
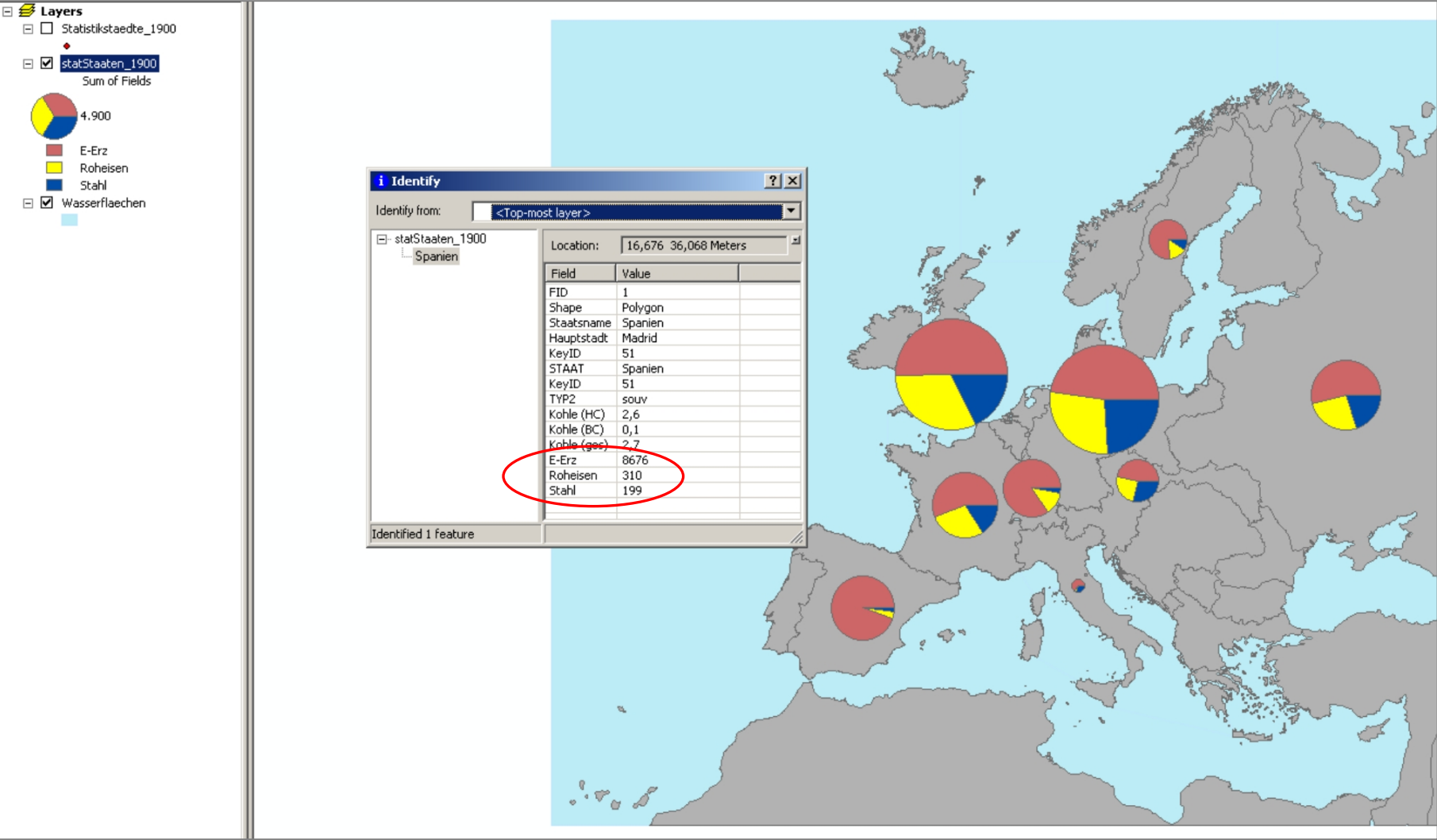
An online information system

• Basic information on European states (1825-2008)

• Basic information on European capital cities and the territories to which they belonged (1500-2008)

Query on the Duchy of Lucca in 1825

Query on the city of Florence in 1825
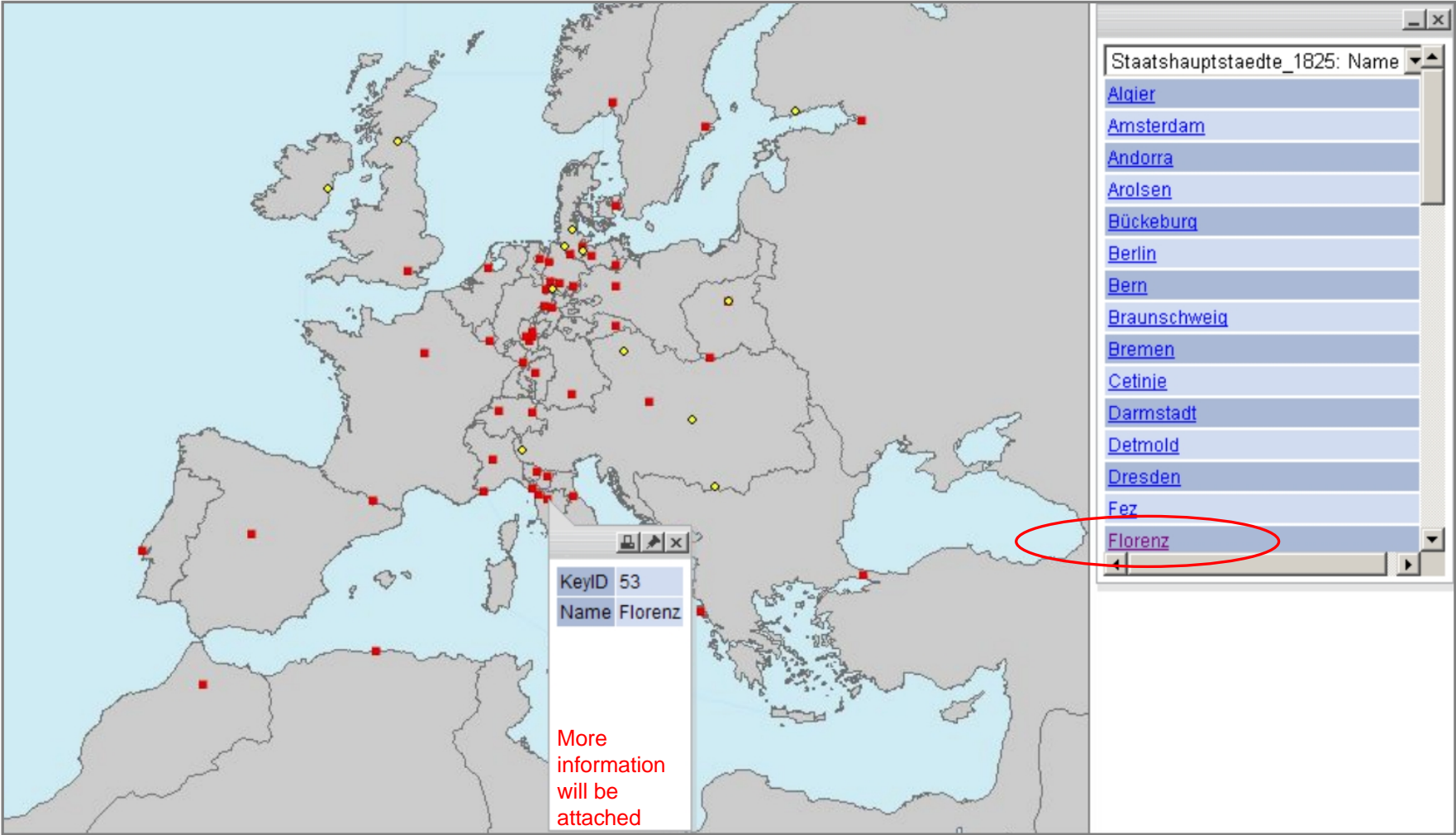
Thank you for your attention!