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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.
<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1800</td>
<td>c. 2000</td>
<td>sovereign territorial states, Imperial knights, Imperial cities</td>
</tr>
<tr>
<td>1820</td>
<td>41</td>
<td>sovereign territorial states as federated states</td>
</tr>
<tr>
<td>1871</td>
<td>21</td>
<td>federated states</td>
</tr>
<tr>
<td>1919</td>
<td>18</td>
<td>states</td>
</tr>
<tr>
<td>1949</td>
<td>11</td>
<td>federal states (Bundeslaender) in the Federal Republic</td>
</tr>
<tr>
<td>1949</td>
<td>5</td>
<td>states in the German Democratic Republic</td>
</tr>
<tr>
<td>1952</td>
<td>15</td>
<td>districts in the GDR</td>
</tr>
<tr>
<td>1991</td>
<td>16</td>
<td>federal states</td>
</tr>
</tbody>
</table>
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.
The German states in 1820 (Map taken from IEG-Maps)
However, some territorial division remained, particularly in northern and central Germany.
Political division of North Central Germany in 1820 (from IEG-Maps)
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)*

<table>
<thead>
<tr>
<th>Germany</th>
<th>Central Europe</th>
<th>Europe</th>
</tr>
</thead>
<tbody>
<tr>
<td>1812</td>
<td>1812</td>
<td>1812</td>
</tr>
<tr>
<td>1814</td>
<td>1820</td>
<td>1820</td>
</tr>
<tr>
<td>1820</td>
<td>1848</td>
<td>others</td>
</tr>
<tr>
<td>1848</td>
<td>1860</td>
<td></td>
</tr>
<tr>
<td>1867</td>
<td>1867</td>
<td></td>
</tr>
<tr>
<td>1871</td>
<td>1871</td>
<td></td>
</tr>
<tr>
<td>1921</td>
<td>1914</td>
<td></td>
</tr>
<tr>
<td>1923/1930</td>
<td>1922</td>
<td></td>
</tr>
<tr>
<td>1937</td>
<td>1937</td>
<td></td>
</tr>
</tbody>
</table>
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

Mapserver

IEG-MAPS

supplies additional maps to users of GIS
supplies graphic platforms and basic maps to GIS

GIS 1
on
German territories
since 1820
since 1618
European territories since 1618

GIS 2
on
German railways
since 1835
German transport since c. 1800

European transport since c. 1800
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)
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

Grossherzogtum
Sachsen-Weimar-Eisenach 1820
in der Mitteldeutschen Staatenwelt
50 km
GIS-Simulation: Level 3

Grossherzogtum Sachsen-Weimar-Eisenach 1820
und benachbarte Staaten
40 km

sonstige thüringische Staaten
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)
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)
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!