Handling imperfection of spatial knowledge for the study of French maritime places dynamics along the 18th century

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The expansion of maritime trade in the modern era from 16th to 18th century


*Publication of French ports of eighteenth century in a gazetteer,*

*Humanités numériques,* http://journals.openedition.org.ressources.univ-poitiers.fr/revuehn/1164 ;

DOI : https://doi-org.ressources.univ-poitiers.fr/10.4000/revuehn.1164

A reproducible workflow for ports

PUBLISHING A GAZETTEER
At the beginning was Geo_general 1787-89

http://navigocorpus.org/

**Built in 2010.** Initially based on the integration of 4 million points supplied by the US National Geospatial-Intelligence Agency (NGA), with their WGS84 geographic coordinates and several transliterations (e.g. London, London, Londra, etc.).

PORTIC publish **1435** localities whom **31%** are coming from manual entries.

1. descend below the level of the municipality, for example, to distinguish the ports of Oneille and Port-Maurice, which today are two districts of the current municipality of Imperia, in Italy, whereas in 1787, Oneglia was not only a city apart, but it did not even belong to the Republic of Genoa, of which it was an enclave placed under the sovereignty of Piedmont;
2. be able to deal with localities all over the globe;
3. take into account vague maritime points such as shipwrecks locations and landmarks;
4. take into account the old spellings and their evolution over time, to be able to distinguish, for example, Saint-Nazaire, at the mouth of the Loire, from the homonymous locality in 1787 which is now called Sanary-sur-Mer (Var);
5. be able to associate the ports with political entities that have now disappeared, such as the Papal States or the Ottoman Empire.
Fiscal meshes: Admiralty and Province ones

Cassini Map 1750 + Chardon’s survey [1781-1785]
Using contemporary sources

Qualifying the accuracy of localisation

https://www.geonames.org/
https://msi.nga.mil/Publications/WPI
https://diffusion.shom.fr/toponymes.html

**Classe PRT (port):** a place provided with terminal and transfer facilities for loading and discharging waterborne cargo or passengers, usually located in a harbor

<table>
<thead>
<tr>
<th>Contemporary sources</th>
<th>Historical sources</th>
<th>Number of ports</th>
<th>rate of matching</th>
<th>Mean distance (m)</th>
<th>Distance dispersion (%)</th>
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Geographic distance in average (m) 1835
Using contemporary sources

Compute an uncertainty level

<table>
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<th>unc. level 2</th>
<th>unc. level 3</th>
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<td>83</td>
<td>97 %</td>
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<td>3</td>
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<tr>
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<td>97</td>
<td>98 %</td>
<td>71</td>
<td>16</td>
<td>10</td>
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<tr>
<td>TOTAL</td>
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<td>1368</td>
<td>96 %</td>
<td>933</td>
<td>374</td>
<td>61</td>
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</table>

Compute pairs \((X, Y)\) that match at best a) lexical similarity and b) geographical distance between “past” and “present” points, being at less than 5 km from each others

If \(a = b\), then uncertainty level \(<- 1\) \(\Leftrightarrow\) exactMatch

If \(a \neq b\), then take \(a\) with uncertainty level \(<- 2\) \(\Leftrightarrow\) closeMatch

If \(a \neq b\) and no \(a\), then take \(b\) with uncertainty level \(<- 3\) \(\Leftrightarrow\) closeMatch

https://gitlab.huma-num.fr/portic/gazetteer/-/blob/master/BuildPorts.py
A few semantic inaccuracies

Type of a port? [http://vocab.getty.edu/page/aat/300120599]

ID: 300120599
Page Link: http://vocab.getty.edu/page/aat/300120599

Record Type: concept

ports (settlements) (<settlements by economic base>, inhabited places, ... Built Environment (hierarchy name))

Note: Settlement areas possessing a harbor and terminal facilities used for loading or unloading, or water transportation. By extension, the term is also applied to such areas facilitating air transportation.

Type of an admiralty? [http://vocab.getty.edu/page/aat/300387179]

ID: 300387179
Page Link: http://vocab.getty.edu/page/aat/300387179

Record Type: concept

former administrative divisions (divisions (political administrative bodies), <political administrative bodies by degree of independence>, ... Organizations (hierarchy name))

Note: Divisions of a political entity, of any administrative level, that formerly were in place but are now defunct.

Type of a province? [http://vocab.getty.edu/page/aat/300000774]

ID: 300000774
Page Link: http://vocab.getty.edu/page/aat/300000774

Record Type: concept

provinces (political divisions, divisions (political administrative bodies), ... Organizations (hierarchy name))

Note: The constituent political and administrative divisions within various sovereign states, including historic ones such as the Roman Empire and modern nations under a federal system such as Canada and Spain.

Ensure interoperability with others:

https://pelagios.org/
https://whgazetteer.org/
https://pleiades.stoa.org/place
With the LinkedPasts initiative

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LinkedPlaces model

**title, ccode**
- **Dunkerque**, FR

**names**
- Dunkerque, en
- Dunkerque, fr

**citations**
- Portic Gazetteer (1787)

**types**
- former administrative divisions

**geometry**
- MultiLineString
- coordinates: [(2.71456895817573, 51.15850036834), (2.72841627819055, 51.149566774442), (2.72841627819055, 51.149566774442)]
- when: start: earliest: 1669, end: latest: 1791

**relations**
- broaderPartitive to Royaume de France, start: earliest: 843, end: in: 1791
- broaderPartitive to France, start: in: 1781, end: in: 1785
What about States?

MAPPING WITH FORMER BORDERS OF THE 18TH CENTURY
The historian approach for States [1749 – 1815]

The state belonging of each port

Need for political entities that sometimes no longer exist, such as the Papal States or the Ottoman Empire, and their changes over the period [1749-1815].

Examples:
For example, Stralsund or Barth belonged to Swedish Pomerania until 1815, while Wismar, also part of Swedish Pomerania, was given to Mecklenburg in 1803. All these ports are today part of the German Federal Republic.

- Generic names (« Baltique ») \(\rightarrow\) « multi-States »
- Events on the open sea \(\rightarrow\) « maritime point »
The need for the vectorial shapes of political entities

Example: the open Ourednik’s map of 1783

https://github.com/aourednik/historical-basemaps/blob/master/README.md
The Poland in 1789?

- 1772
- 1793
- 1795
Old maps online

https://www.davidrumsey.com/luna/servlet/detail/RUMSEY~8~1~20476~540066:Pologne?sort=Pub_List_No_InitialSort%2CPub_Date%2CPub_List_No%2CSeries_No&qvq=q:Poland%201780;sort:Pub_List_No_InitialSort%2CPub_Date%2CPub_List_No%2CSeries_No;lc:RUMSEY~8~1&mi=5&trs=7#
Capture an elusive boundary

The drawing of precisely defined geographical borders is a recent undertaking in human history.

The main idea

Bottom-up aggregation process

1. We have modified manually the vectorial limits of units of second level built through our bottom-up aggregation process of municipality units provided by Eurostat to make provinces / counties limits: level 2
2. Then units of second level typed either province (aat:300000774) or counties (aat:300000771) were re-aggregated to compose an upper level distinguishing the countries (type aat:300387506 like Scotland, England, Northern Ireland) and colonies (type aat:300235115): level 1
3. Units of level 1 were then aggregated to a level 0 that fusion all countries, colonies of a same empire (type aat: 300128214, like United Kingdom or French Kindom) into a single multi-polygonal entity: level 0

This process have produced a new open dataset covering Europe composed of three levels.
Linking with published nomenclatures

GeoPolHist: https://doi.org/10.1080/01615440.2021.1939826

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Doubts, or not found: 18/51 for states; 11/56 for subunits
Ex: Duchy of Courland - Duchy of Massa and Carrara - Duchy of Mecklenburg

Alignment impossible: 15/56 for subunits
Ex: colonies [Portuguese, Spanish, French, English, ...] in Africa, America, [etc.]. maritime zone, multi-State
Next steps

CONCLUSION ET PERSPECTIVES
Empires’ possessions in 1789

http://maps.portic.fr
Collaborative online tool?

https://www.openhistoricalmap.org/#map=4/33.87/-49.97&layers=O&date=1789-04-28&daterange=1783-01-01,1789-12-31