

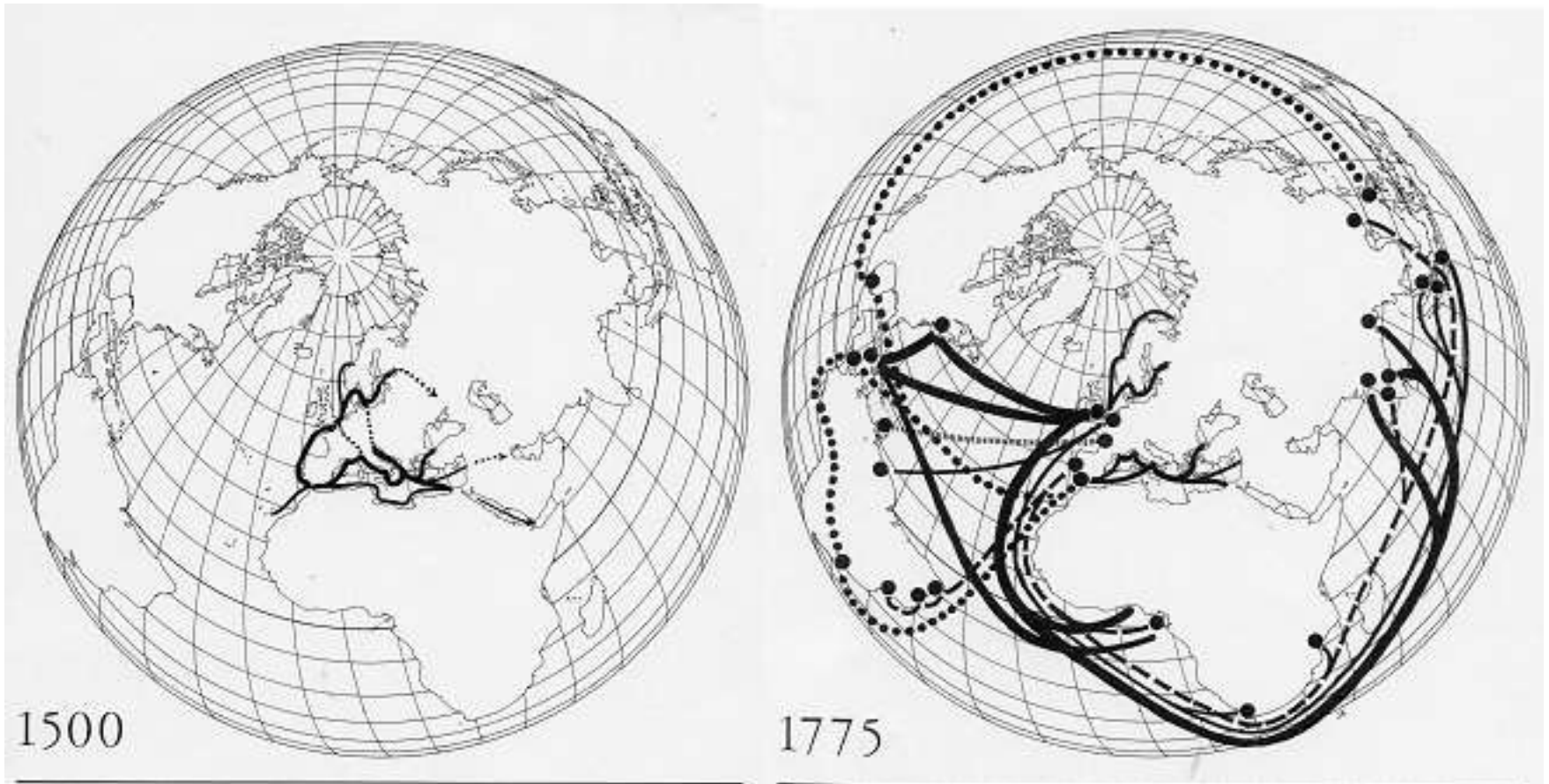


Handling imperfection of spatial knowledge for the study of French maritime places dynamics along the 18th century

7th ACM SIGSPATIAL International Workshop on Geospatial
Humanities
held in conjunction with [ACM SIGSPATIAL 2023](#) in Hamburg,
Germany.

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



Fernand Braudel, *Les Jeux de l'Échange*, Paris, Armand Colin, 1979, p. 331-332

C. Plumejeaud-Perreau, et al., (2021)

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

Navigocorpus, (ANR-07-CORP-028)

At the beginning was Geo_general **1787-89**

<http://navigocorpus.org/>

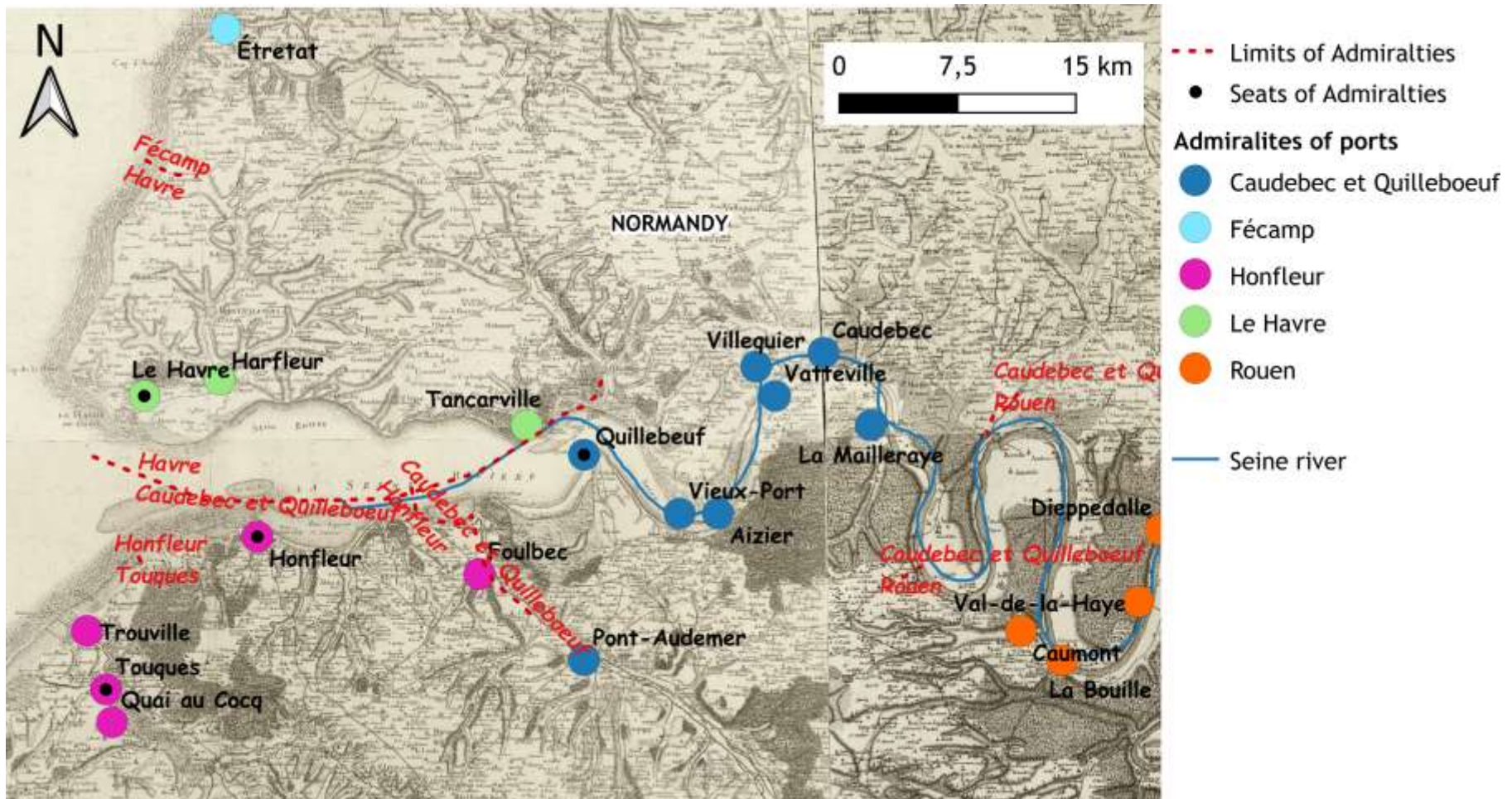
Built in 2010. Initially based on the integration of 4 million points supplied by the US National Geospatial-Intelligence Agency (NGA), with their WGS84 geographic coordinates and several transliterations (e.g. London, London, Londra, etc.).

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.

Cassini Map 1750 + Chardon's survey [1781-1785]

Fiscal meshes : Admiralty and Province ones



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*

Contemporary sources	Historical sources	Number of ports	rate of matching	Mean distance (m)	Distance dispersion (%)
Geonames	Geo_general	1250	95	1505	87
World Port Index	Geo_general	1250	34	2050	69
BD toponymes of SHOM	Geo_general	1250	22	2619	55
Geographic distance in average (m)				1835	

Using contemporary sources

Compute an uncertainty level

Historical source	Total number	Total matched	Rate of matching	unc. level 1	unc. level 2	unc. level 3
Geo_general	1250	1188	95 %	795	345	48
Chardon	86	83	97 %	67	13	3
Cassini	99	97	98 %	71	16	10
TOTAL	1435	1368	96 %	933	374	61

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 $\leftarrow 1$ \Leftrightarrow exactMatch
- If $a \neq b$, then take a with uncertainty level $\leftarrow 2$ \Leftrightarrow closeMatch
- If $a \neq b$ and no a , then take b with uncertainty level $\leftarrow 3$ \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.

With the LinkedPasts initiative

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TITLE, CCODE

dates

NAMES

citations

LINKS

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TYPES

LinkedPlaces model

dates

citations

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```

GEOMETRY

dates

citations

certainty

```

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```

RELATIONS

dates

citations

certainty

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 ») → « multi-States »
- Events on the open sea → « 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#



COLLECTION NAME:

David Rumsey Historical Map Collection

Record ▼

Author:

Rizzi Zannoni, Giovanni Antonio Bartolomeo, 1736-1814

Date:

1780

Short Title:

Pologne.

Publisher:

Lattre & Delalain

Publisher Location:

Paris

Type:

Atlas Map

Obj Height cm:

31

Obj Width cm:

46

Scale 1:

4,000,000

Note:

Engraved map. Boundaries outlined in hand col. Relief shown pictorially. Ornamental cartouche. Prime meridian: Ferro.

Reference:

Cf. Malinowski, H. The Malinowski collection of maps of Poland, 506-507, 687 (1762, 1782 eds.)

Capture an elusive boundary

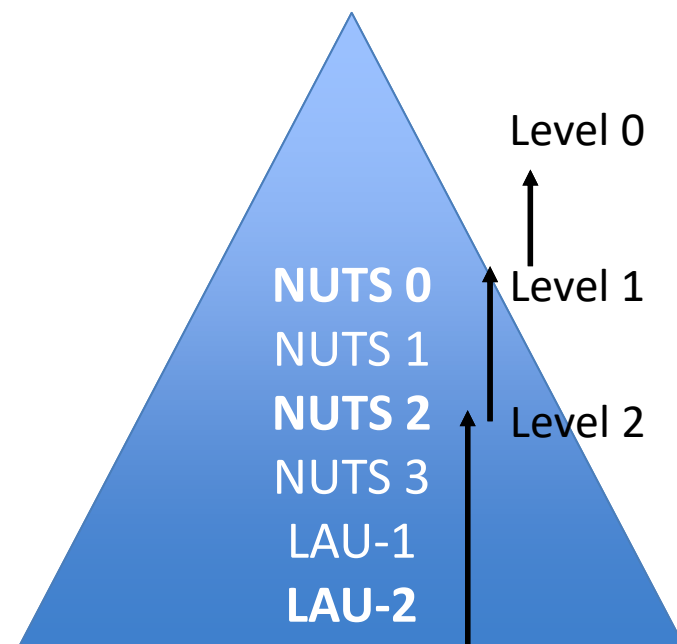


The drawing of precisely defined geographical borders is a recent undertaking in human history.

Nordman, Daniel. 1998. *Frontières de France : de l'espace au territoire : XVIe-XIXe siècle*. Gallimard. Paris

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.

<https://ec.europa.eu/eurostat/fr/web/gisco/geodata/reference-data/administrative-units-statistical-units/lau>

Linking with published nomenclatures

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

etat	GPH_code	subunit	subunit_GPH_code	etat_en	subunit_en	flag_id	flag_fr	flag_en
Autriche		300 Autriche méditerranéenne		Austria	Austria - Mediterranean ports	A0049520	Pays-Bas autrichien	Austrian Netherlands
Autriche		300 Pays-Bas autrichiens		Austria	Austrian Netherlands	A0049520	Pays-Bas autrichien	Austrian Netherlands
Brême		246		Bremen		A0765201	brémois	Bremen
Chine		710		China		D0000008	Chine	China
Danemark		390 colonies danoises		Denmark	Danish colonies	A0829022	Danemark	Denmark
Danemark		390 Norvège		385 Denmark	Norway	A0829022	Danemark	Denmark
Danemark		390		Denmark		A0829022	Danemark	Denmark
Duché de Courlande					Duchy of Courland	A1017571	Courlande	Courland
Duché de Massa et Carrare					Duchy of Massa	A0243743	Massa	Massa
Duché de Mecklenbourg		281			Mecklenburg	A0676229	meckelmbourgeois	Mecklenburg
Duché d'Oldenbourg		257			Duchy of Oldenburg	A1968862	oldenbourgeois	Oldenburg
Empire ottoman		640 Régence d'Alger		615 Ottoman emp	Regency of Algiers	A1968748	ottoman	Ottoman
Empire ottoman		640 Régence de Tripoli		651 Ottoman emp	Regency of Tripoli	A1968748	ottoman	Ottoman
Empire ottoman		640 Régence de Tunis		616 Ottoman emp	Regency of Tunis	A1968748	ottoman	Ottoman
Empire ottoman		640			Ottoman empire	A1968748	ottoman	Ottoman
Espagne		230 Canaries		Spain	Canary Islands	A0074743	espagnol	Spain
Espagne		230 colonies espagnoles d'Amérique		42 Spain	Spanish colonies in America	A0074743	espagnol	Spain, undetermined
Espagne		230			Spain	A0074743	espagnol	Spain, undetermined
Etats pontificaux		327			Papal States	A1968753	Etats Pontificaux	Papal States
Hambourg		248			Hamburg	A0714848	hambourgeois	Hamburguese
Lubeck		276			Lubeck	A0686629	lubeckois	Lubeck
Malte		338			Malta	A0036064	maltais	Malta
Monaco		221			Principality of Monaco	A0353892	Monaco	Monaco
Pologne		290			Poland	A1149784	polonais	Polish
Portugal		235 colonies portugaises d'Afrique		Portugal	Portuguese colonies in Africa	A0355726	portugais	Portuguese
Portugal		235 colonies portugaises d'Amérique		Portugal	Portuguese colonies in America	A0355726	portugais	Portuguese
Portugal		235 îles atlantiques portugaises		Portugal	Portuguese Atlantic Islands	A0355726	portugais	Portuguese

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

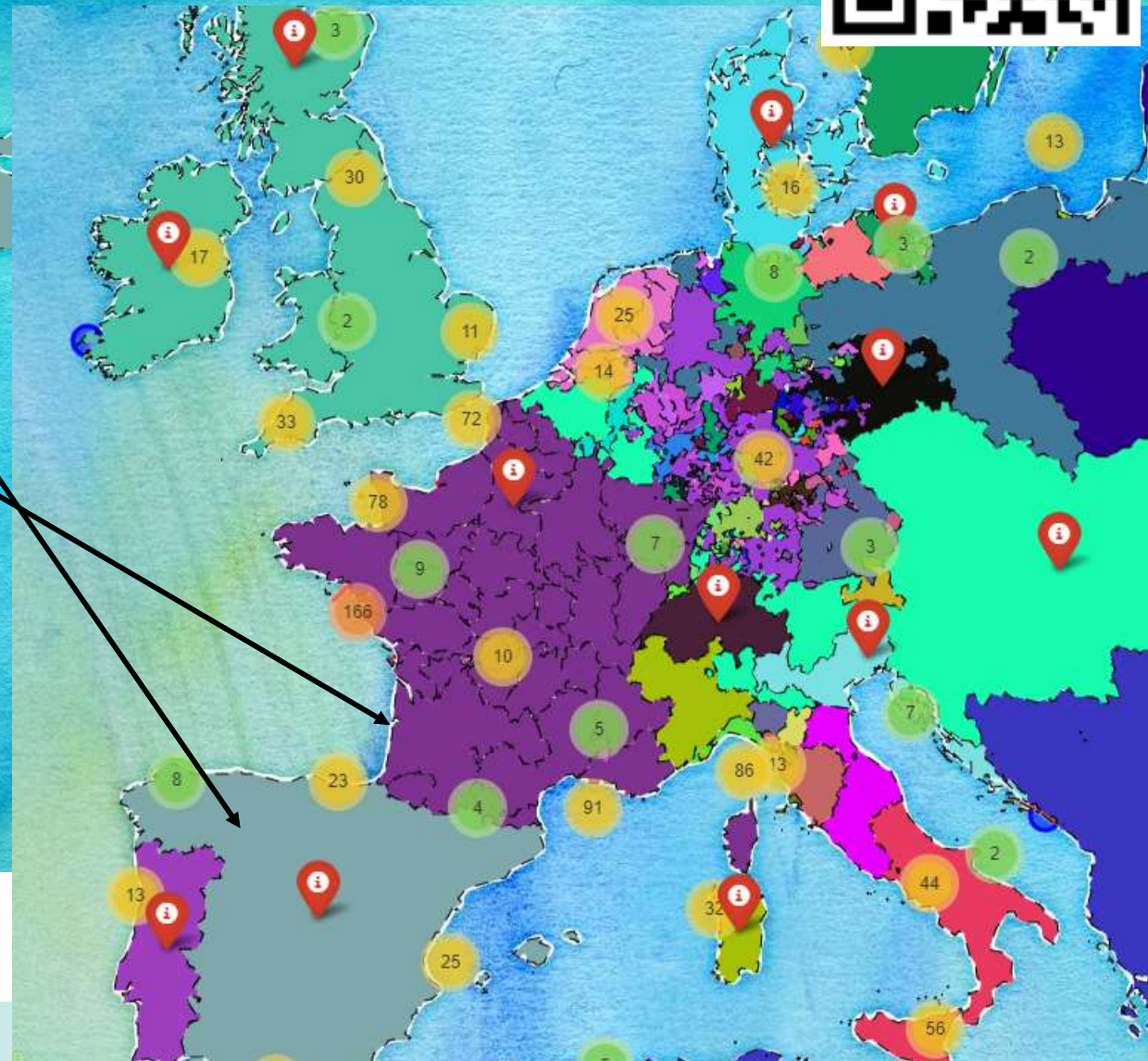
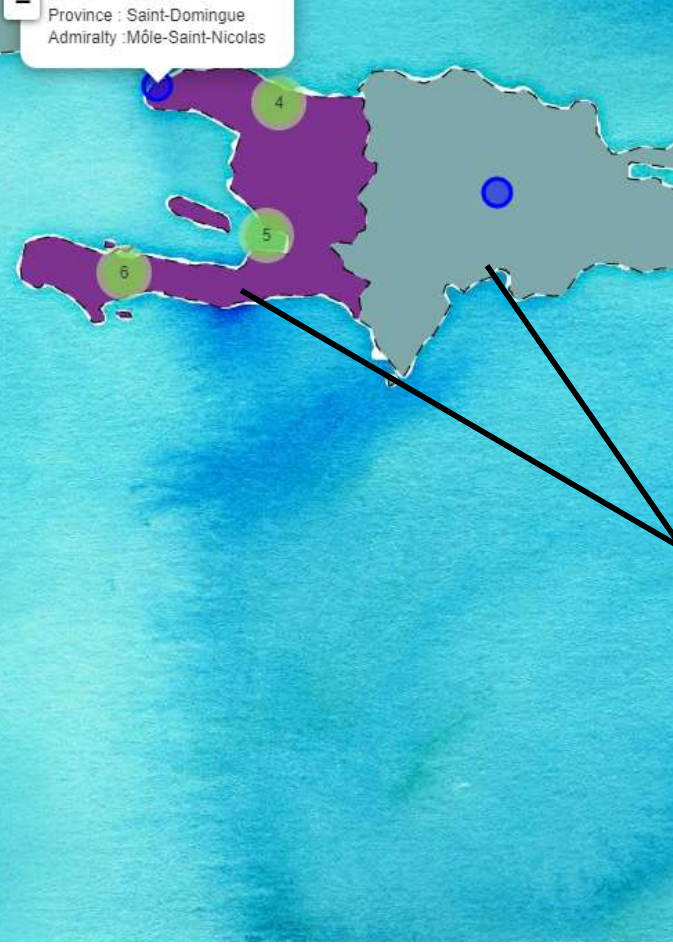
Next steps

CONCLUSION ET PERSPECTIVES

Empires' possessions in 1789



+ Môle-Saint-Nicolas
- State : France
- Province : Saint-Domingue
- Admiralty : Môle-Saint-Nicolas



<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>

The screenshot displays the OpenHistoricalMap interface. At the top left, the logo "OpenHistoricalMap" is visible, along with buttons for "Modifier", "Historique", and "Exporter". On the right side of the top bar, there are links for "Traces GPS", "Agendas d'utilisateurs", "Droits d'auteur", "Aide", "À propos", "Se connecter", and "S'inscrire". Below the top bar is a search bar with the text "Rechercher" and "Où est-ce ?" followed by an "Aller" button. The main map area shows a historical view of North America and Europe. Labels on the map include "LUISIANA", "Comancheria", "LA FLORIDA", "Gulf of Mexico", "Caribbean Sea", "Atlantic Ocean", "DANSK VESTINDIEN", "British Settlements on the Bay of Honduras", "VIRREINATO DE NUEVA ESPAÑA", "NEW YORK", "CONNECTICUT WESTERN RESERVE", "RHODE ISLAND", "DELAWARE", "VIRGINIA", "NORTH CAROLINA", "SOUTH CAROLINA", "DISTRICT OF MAINE (MASSACHUSETTS)", "US-CANADA LAKE SUPERIOR BORDER DISPUTE", "España", "ANDORRA", "Sieben Zenden", "Sacrum Imper Romanum", "Kingdom of Ireland (1660-1800)", and "Danmark-NO". A date range selector at the bottom right shows "Plage" with "Janvier 1 1783" and "Décembre 31 1789", and a "Définir" button. Below this is a blue bar for the selected date "28 Avril 1789". A timeline slider below the blue bar shows the date "1/1/1783" on the left and "31/12/1789" on the right. At the bottom right, there are navigation icons and a "Saut de Temps" dropdown set to "10 ans", a "Vitesse" dropdown set to "1 Seconde", and a "Définir" button. A "500 km" scale bar is located in the bottom left corner.