



# Conflating Historical Population Statistics Using a Historical GIS with a Flexible Semantic Model for Premodern Administrative Units in the Low Countries

**The (Re)counting the Uncounted and Historical Atlas of the  
Low Countries Projects**

*Rombert Stapel*

*7th ACM SIGSPATIAL International Workshop on  
Geospatial Humanities, 13 November 2023*



**KNAW  
Humanities  
Cluster**

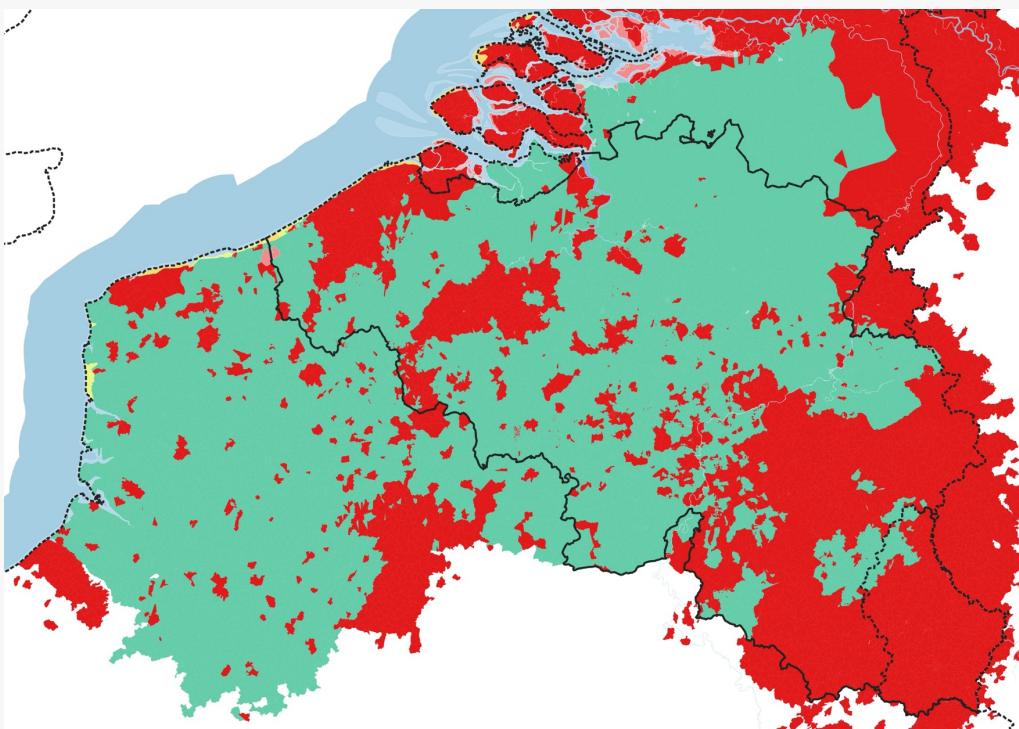
{      } **international institute  
of social history**  
internationaal instituut  
voor sociale geschiedenis

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# **Reliable population estimates: essential building block for (historical) research**

From 19<sup>th</sup> century onwards (in Western world): modern population censuses that (pretend/aim to) cover **entire population** and **entire, contiguous territory** (nation state)

# Challenges with premodern censuses



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not all individuals are counted

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**not all localities are covered whilst the censuses claim to do so**

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**there have been significant landscape and boundary changes of these areas**

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the counts vary wildly in type, timing, and circumstances

# Challenges with conflation, backward compatibility

Merging centuries of changing administrative units

Premodern period: not feasible to create boundaries from bottom up and then link statistics

Statistics linked to historical GIS in v1 need to be compatible with HGIS v2

# **(Re)counting the Uncounted.**

## **Replication and Contextualisation of Dutch and Belgian Premodern Population Estimates (1350-1800)**

Dutch Research Council (NWO): first in world to experiment by funding replication studies

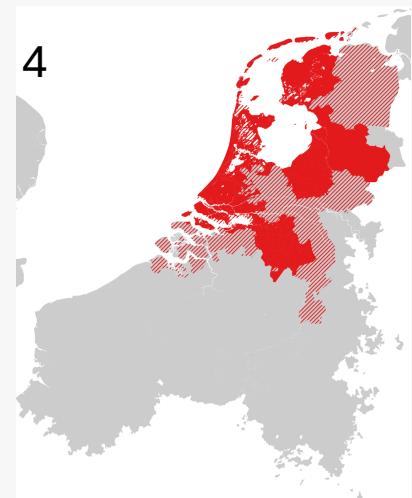
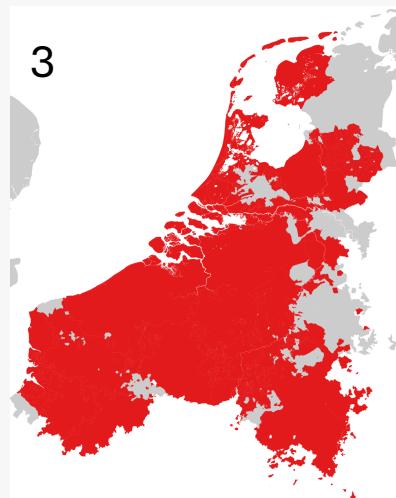
- Response to major scientific misconduct affair in (social) sciences and ‘replication crisis’ more broadly
- 2020: open for humanities

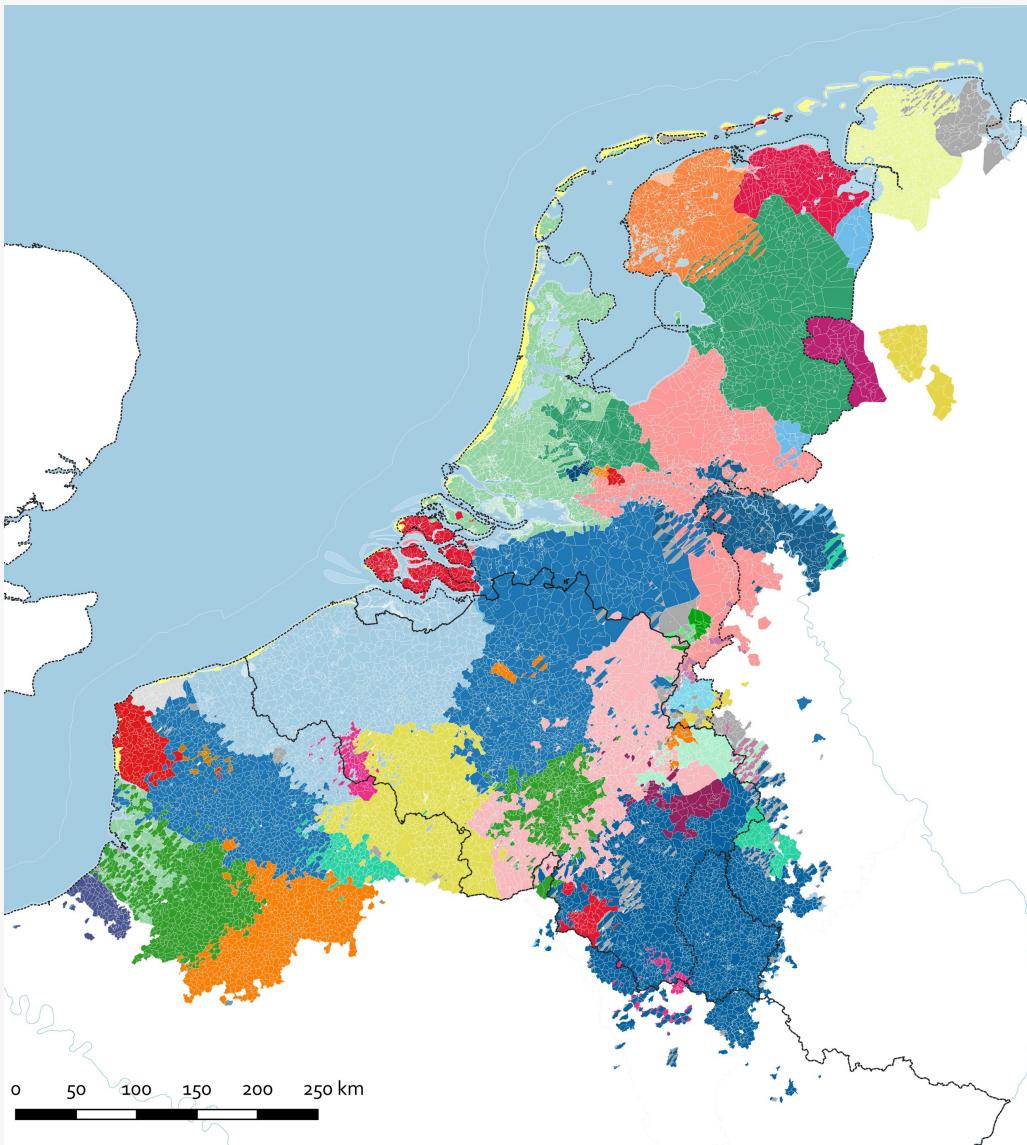
Quite strict rules on how replication research should be organised

- Requirement to use same sources and ‘research protocols’ as original studies

# Studies to be replicated

1. **Paping 2014:** Provincial estimates Netherlands  
1400-1850
2. **Klep 1991:** Provincial estimates Belgium 1375-  
1831
3. **Blockmans et al. 1980:** Low Countries at height of  
Burgundian power (15th c.), estimates per territory
4. **Faber et al. 1965** ('School of Wageningen'):  
National estimates Netherlands 1500-1950





# Historical Atlas of the Low Countries, 1350–1800

- Parish-equivalent level boundaries
- 17.000 units / 40 premodern territories
- Cross-sections: 1350, 1500, 1650, 1800
- Integrated historical non-inhabitable landscapes
- Atlas continuously updated
- October 2023: launch v8 (full cross-section 1500)
- Open access at <https://datasets.iisg.amsterdam/>
- <https://hdl.handle.net/10622/PGFYTM>

# Mutually beneficial processes

*Creating and refining historical  
GIS*

Historical Atlas of the Low  
Countries, 1350–1800

*Enriching historical (population)  
statistics*

(Re)counting the Uncounted

Linker Views Export Settings Reset

NO.	Place	Linkage	Data ID
1	Bouvignies	Linked	cens...
2	Landas	Linked	cens...
3	Ajis	Linked	cens...
4	Esplechin (Douai)	Linked	cens...
5	Créplaine	Linked	cens...
6	Douai (Douai)	Linked	cens...
7	Wastines	Linked	cens...
8	Vaast-en-Cambrésis	Linked	cens...
9	Sainte-Noye	Linked	cens...
10	Montigny	Linked	cens...
11	Verlinghem	Linked	cens...
12	Marquette-en-Ostrevant	Linked	cens...
13	Cantin	Linked	cens...
14	Estrées	Linked	cens...
15	Aix	Linked	cens...
16	Hamel	Linked	cens...
17	Péronne-en-Mélantois	Linked	cens...
18	Nomain, Rouppuy	Linked	cens...
19	Flines	Linked	cens...
20	Coutiches	Linked	cens...
21	Auchy	Linked	cens...
22	Lannay	Linked	cens...
23	Brillon, Bousignies, Millonfosse	Linked	cens...
24	Annoeullin	Linked	cens...
25	Avelin	Linked	cens...
26	Ascq	Linked	cens...
27	Armentières	Linked	cens...

# Enriching historical statistics by adding precise geospatial definitions

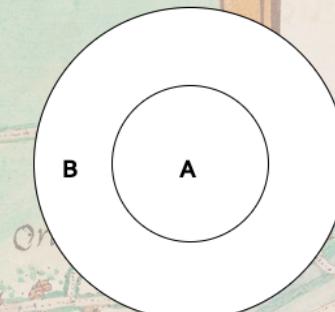


# Producing a more fine- grained, robust, and time- independent historical GIS



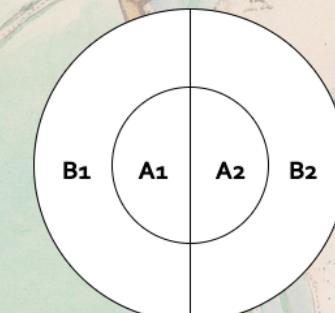
Stage 1

Aardenburg: FLo16o



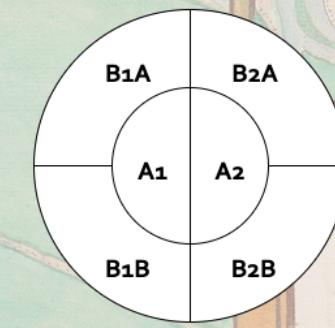
Stage 2

Intramural (i.m.): FLo16oA  
Extramural (e.m.): FLo16oB



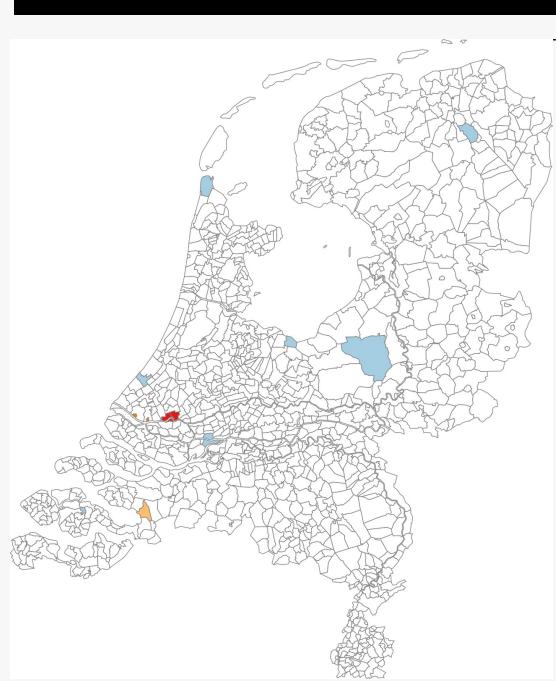
Stage 3

Parish Our Lady, i.m.: FLo16oA1  
Parish Saint Bavo, i.m.: FLo16oA2  
Parish Our Lady, e.m.: FLo16oB1  
Parish Saint Bavo, e.m.: FLo16oB2



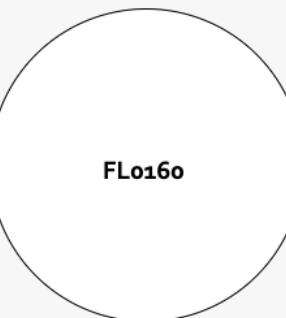
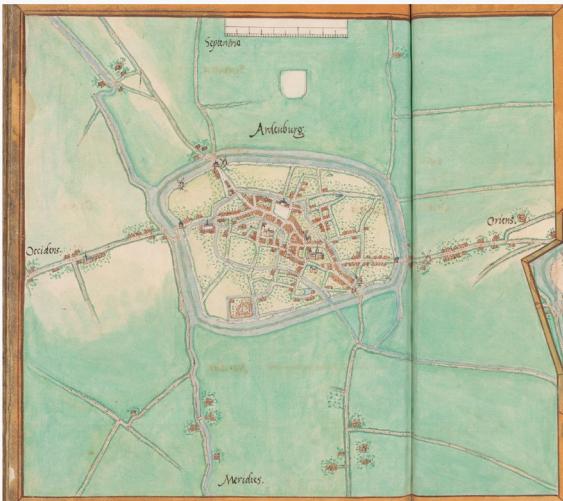
Stage 4

Parish Our Lady, i.m.: FLo16oA1  
Parish Saint Bavo, i.m.: FLo16oA2  
Parish Our Lady, e.m.: FLo16oB1A\*  
Parish Our Lady, lordship Middelburg, e.m.: FLo16oB1B\*  
Parish Saint Bavo, e.m.: FLo16oB2A\*  
Parish Saint Bavo, lordship Middelburg, e.m.: FLo16oB2B\*



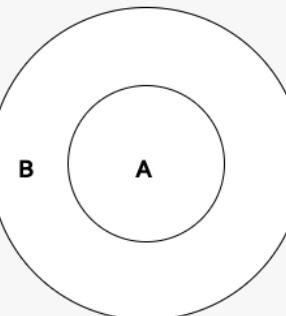
**Aardenburg (S. Bavo).** Vermoedelijk reeds in de 10e eeuw gesticht en evenals S. Maria reeds in 1030 een parochiekerk<sup>3)</sup>. De kerk stond aan de O. L. Vr.kerk en werd na 1625 de predikkerk. Een gedeelte er van is nog door dezen in gebruik.

Cartiarissen (graauwzusters), in 1499 door Anna van den Berghen, in de plaats van het Begijnhof<sup>4)</sup>; hoorend aan dit klooster<sup>5)</sup>; al, omstreeks 1246 door den abt van S. Baaf gevoerde een S. Brigittakapel.



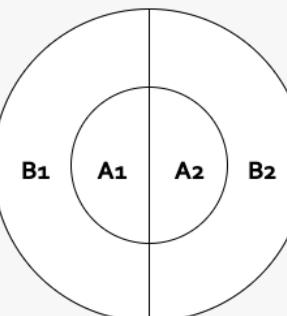
**Stage 1**

Aardenburg: FLo16o



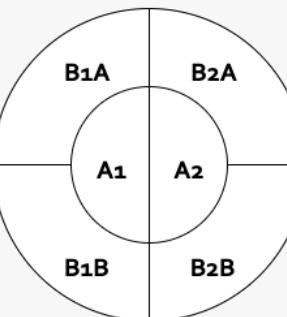
**Stage 2**

Intramural (i.m.): FLo16oA  
Extramural (e.m.): FLo16oB



**Stage 3**

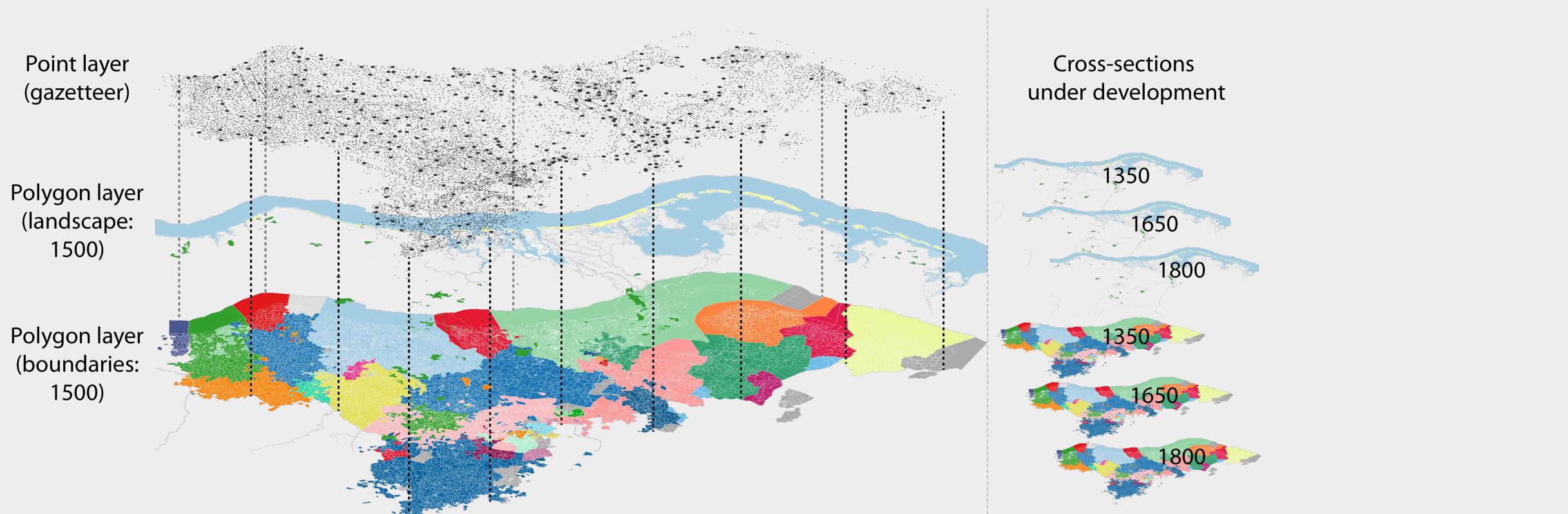
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Parish Saint Bavo, e.m.: FLo16oB2



**Stage 4**

Parish Our Lady, i.m.: FLo16oA1  
Parish Saint Bavo, i.m.: FLo16oA2  
Parish Our Lady, e.m.: FLo16oB1A\*  
Parish Our Lady, lordship Middelburg, e.m.: FLo16oB1B\*  
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Parish Saint Bavo, lordship Middelburg, e.m.: FLo16oB2B\*

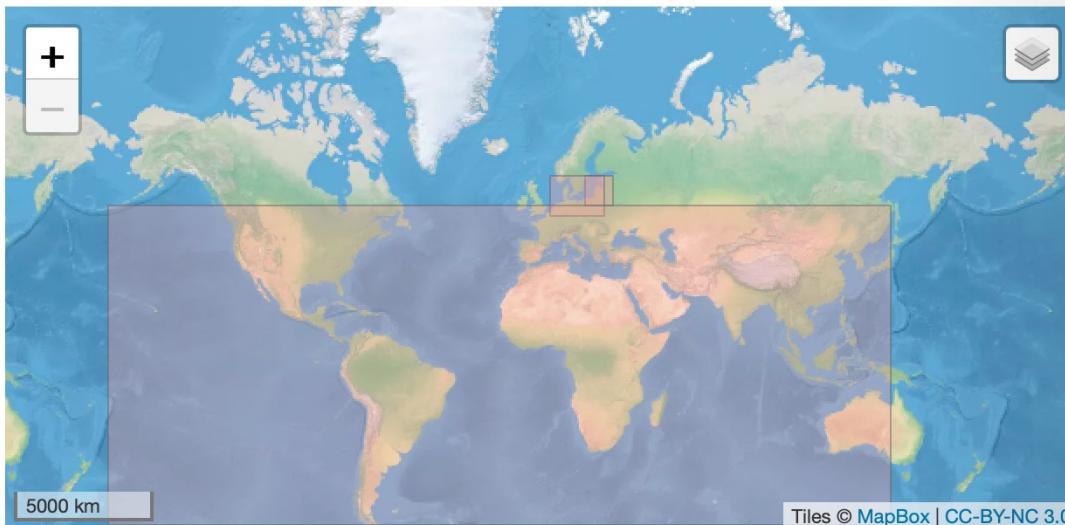
# Flexible semantic model for historical administrative units



[Collection Summary](#)[Browse](#)**Title** **Dutch Global History**

The 'Dutch Global History' collection will offer users a central point of entry for all Dutch historical place names and other place names related to Dutch history – in the broadest geographical sense...[more](#)

**Keywords** Netherlands, West Indies, East Indies

**Datasets (4)** [download options](#)**Title:** **Utrecht Chronicle of the Teutonic Order (689)**

**Description:** List of towns and commanderies in Livonia and Prussia (formerly) associated with the Teutonic Order (Utrecht Chronicle of the Teutonic Order, chaps 717-726). Source for the transcript: R.J. Stapel, ...[more](#)

**Temporal coverage:** 1480 / 1546

**Created:** 22 Aug 2020

**Number of records:** 190

**Title:** **Curaçao Historical Administrative Areas (792)**

**Description:** Spatiotemporal GIS layer of administrative areas (quarters; divisions; districts; urban neighbourhoods) in the island of Curaçao under Dutch, post-WIC control (1792-1954).

**Temporal coverage:** 1651 / 1954

**Created:** 09 Mrt 2021

**Number of records:** 29

**Title:** **Birth places of ordained priests in Utrecht (1505-1518) (771)**

**Description:** Collection of birth places of 4.476 priest ordained in the medieval bishopric of Utrecht between February 1505 and September 1518. The dataset is based on lists originally published by Gisbert Brom in...[more](#)

**Temporal coverage:** 1505 / 1518

**Created:** 19 Jan 2021

**Number of records:** 787

**Title:** **Atlas of Mutual Heritage (819)**

**Description:** The Atlas of Mutual Heritage is a growing database containing information about, and images of, the charter areas of the VOC (Dutch East India Company) and WIC (Dutch West India Company).

**By-product of linking censuses to HGIS: gazetteer creation**

# Thank you for listening

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Team Geo at KNAW HuC

<https://geo.di.huc.knaw.nl>



<https://www.hisgis.nl> (reconstruction 1832 cadastre)