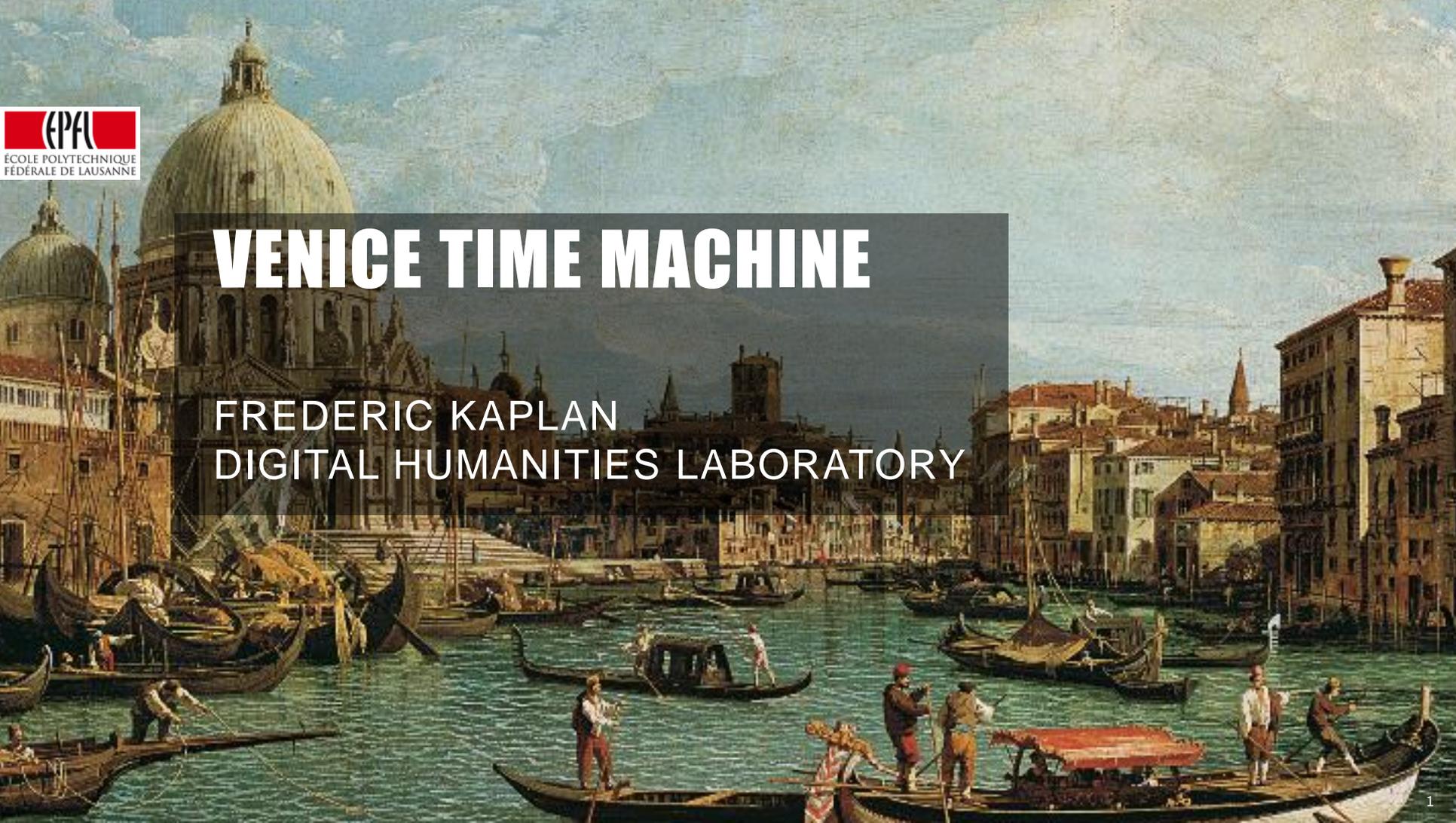


# VENICE TIME MACHINE

FREDERIC KAPLAN  
DIGITAL HUMANITIES LABORATORY





© 2005 Google

Pointer 0°00'00.00" N 0°00'00.00" E

Streaming ||||| 100%

Eye alt 13182.38 km





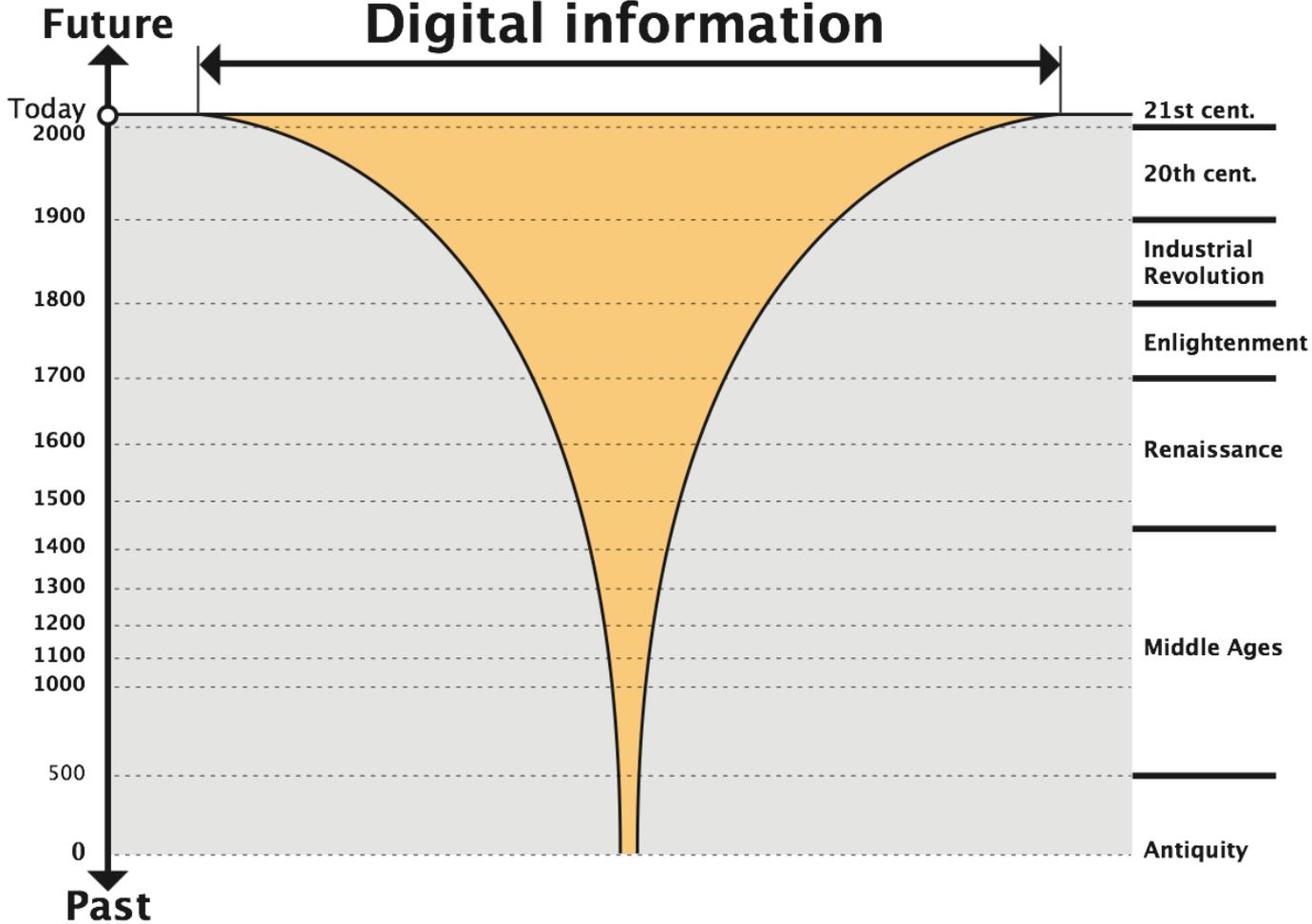
Digital Humanities are inventing  
new tools to travel not only in  
space, but also **through time.**

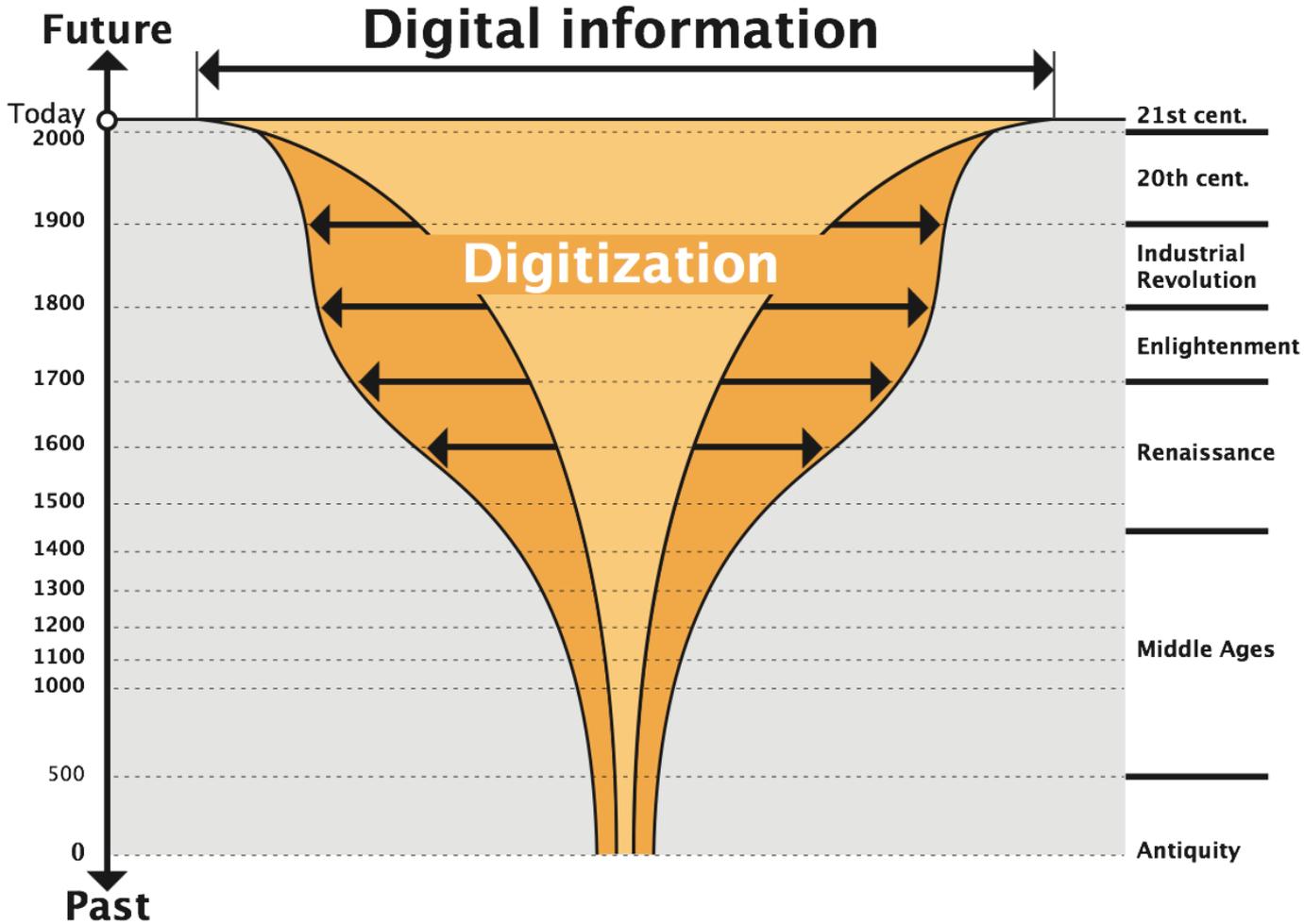
# Can we build “Google maps” of the past ?

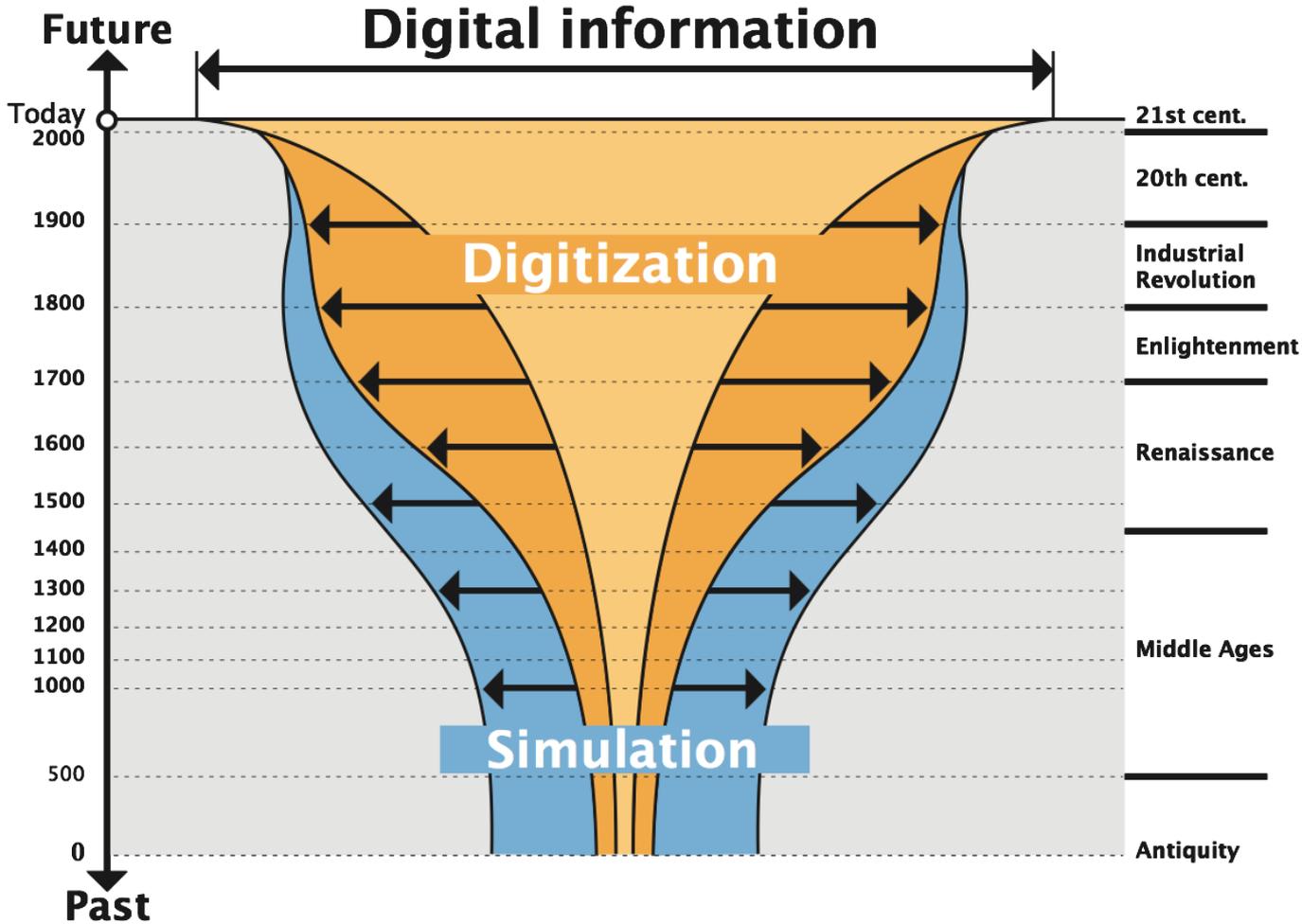
# Can we build “Facebooks” of the past ?

# Can we build **time machines** ?

# Digital information







**The Venice Time Machine**  
is a joint project between  
EPFL and University of Venice  
Ca'Foscari.

# Why Venice ?



**80 km of archives  
documenting every  
detail of Venetian  
history over a 1000  
years.**



**Who lived in this palazzo in 1323 ?**

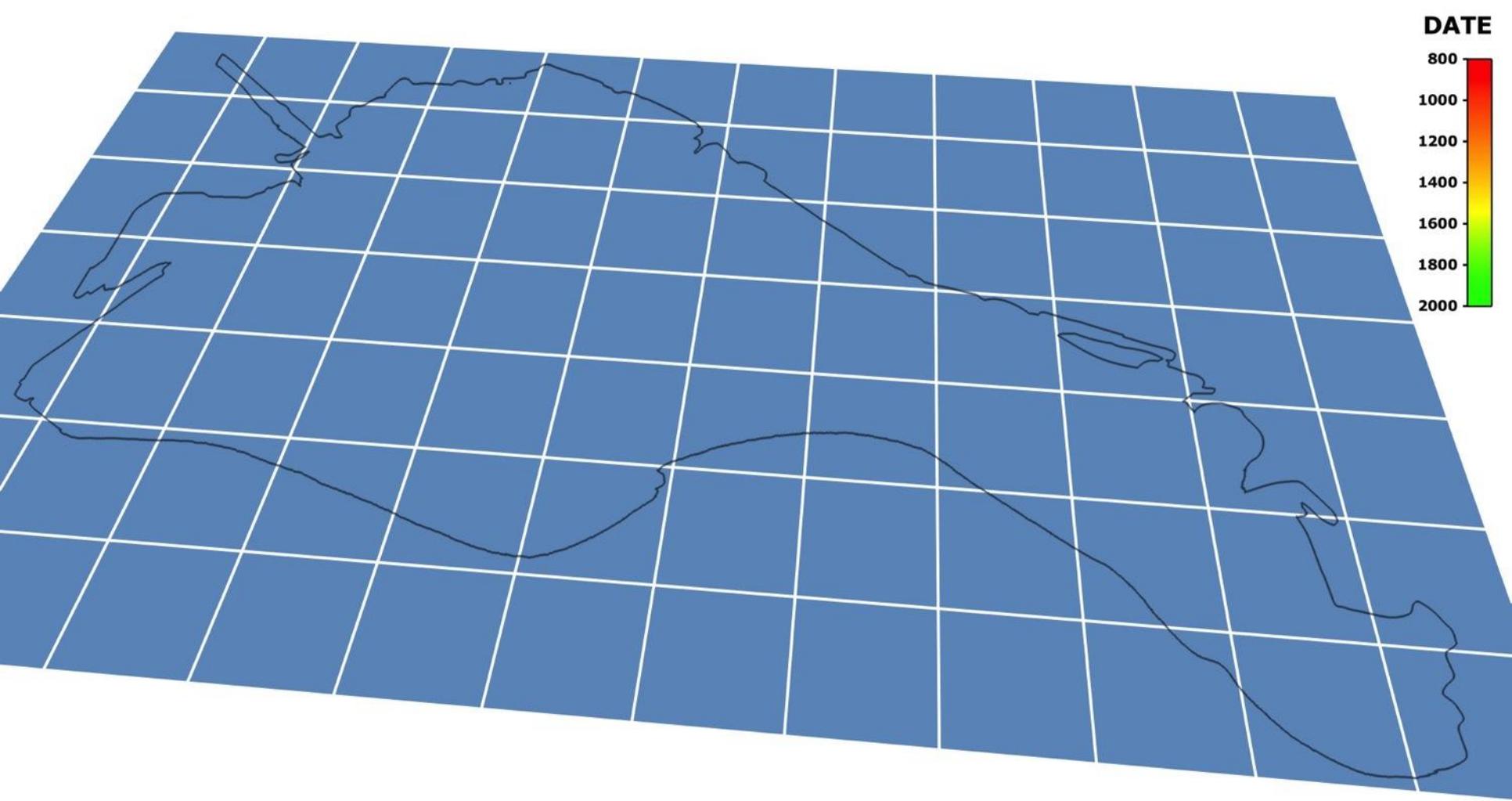
**How much cost a sea bream at the Rialto market in 1434 ?**

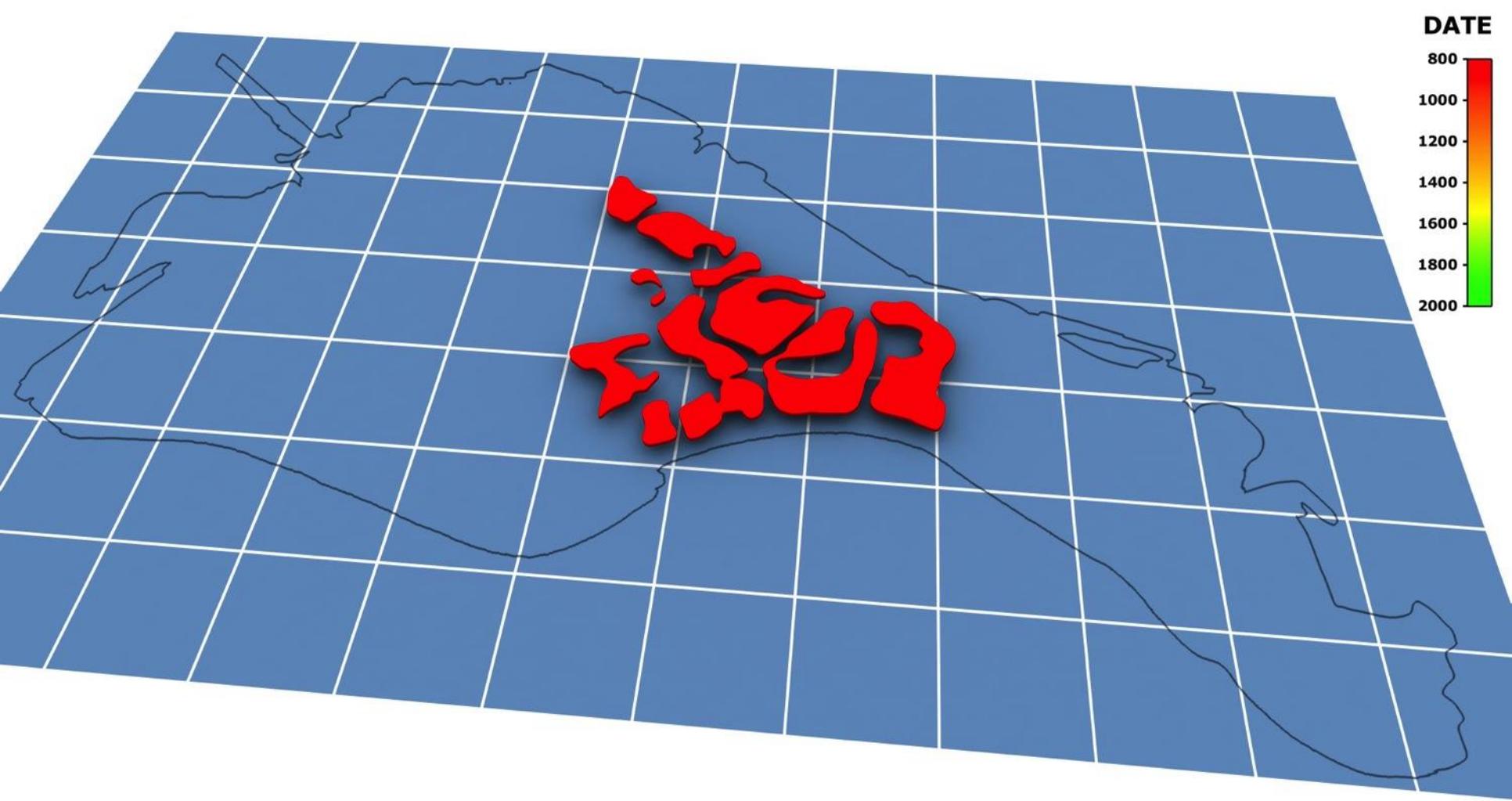
**What was the salary of a Murano glass worker in 1544 ?**

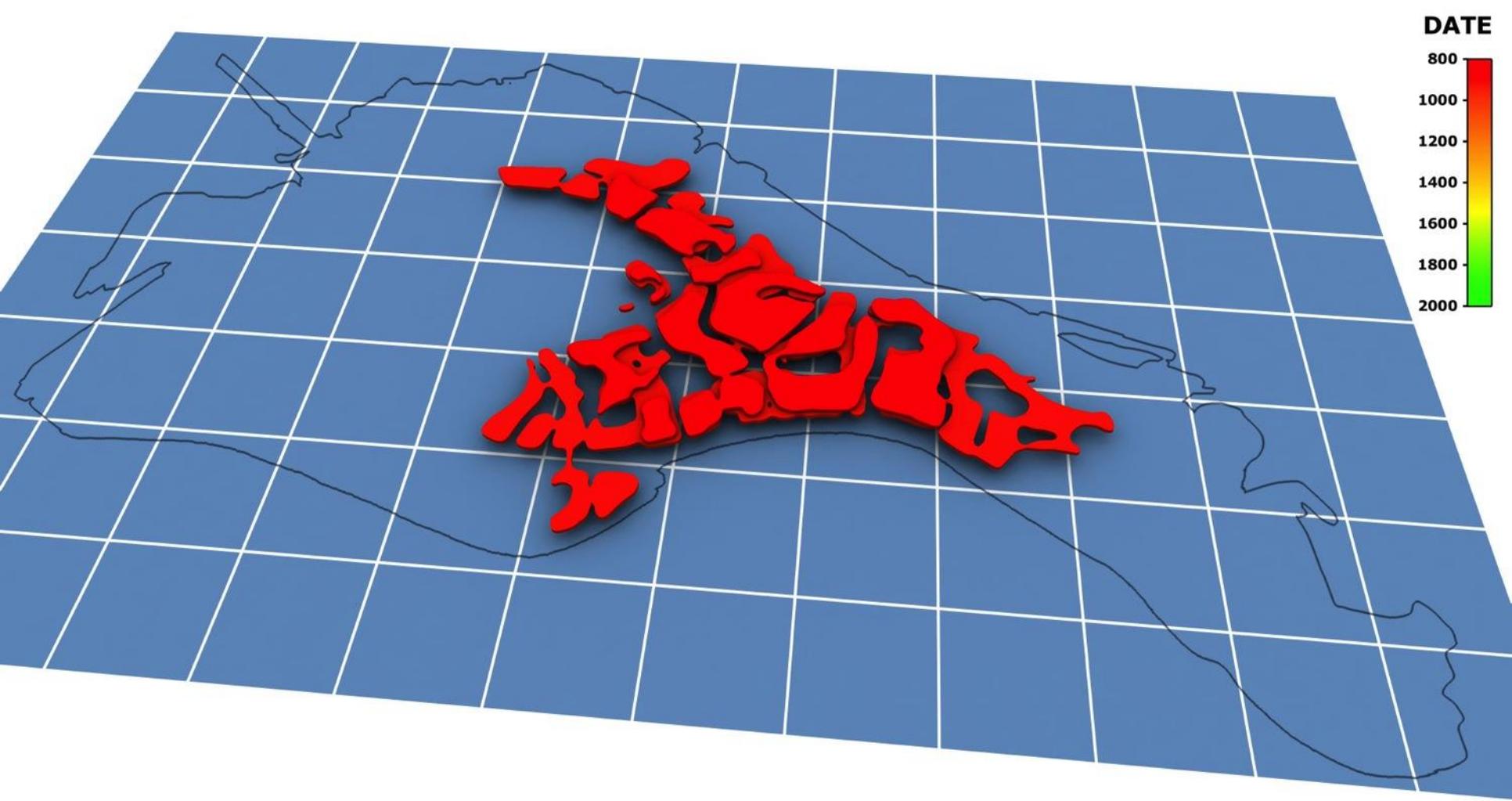
D V C A N T E S E R E N I S S I M O A C I N C L Y T O D V C E D O  
LEONARDO LAVREDANO DEI G. V. & C.

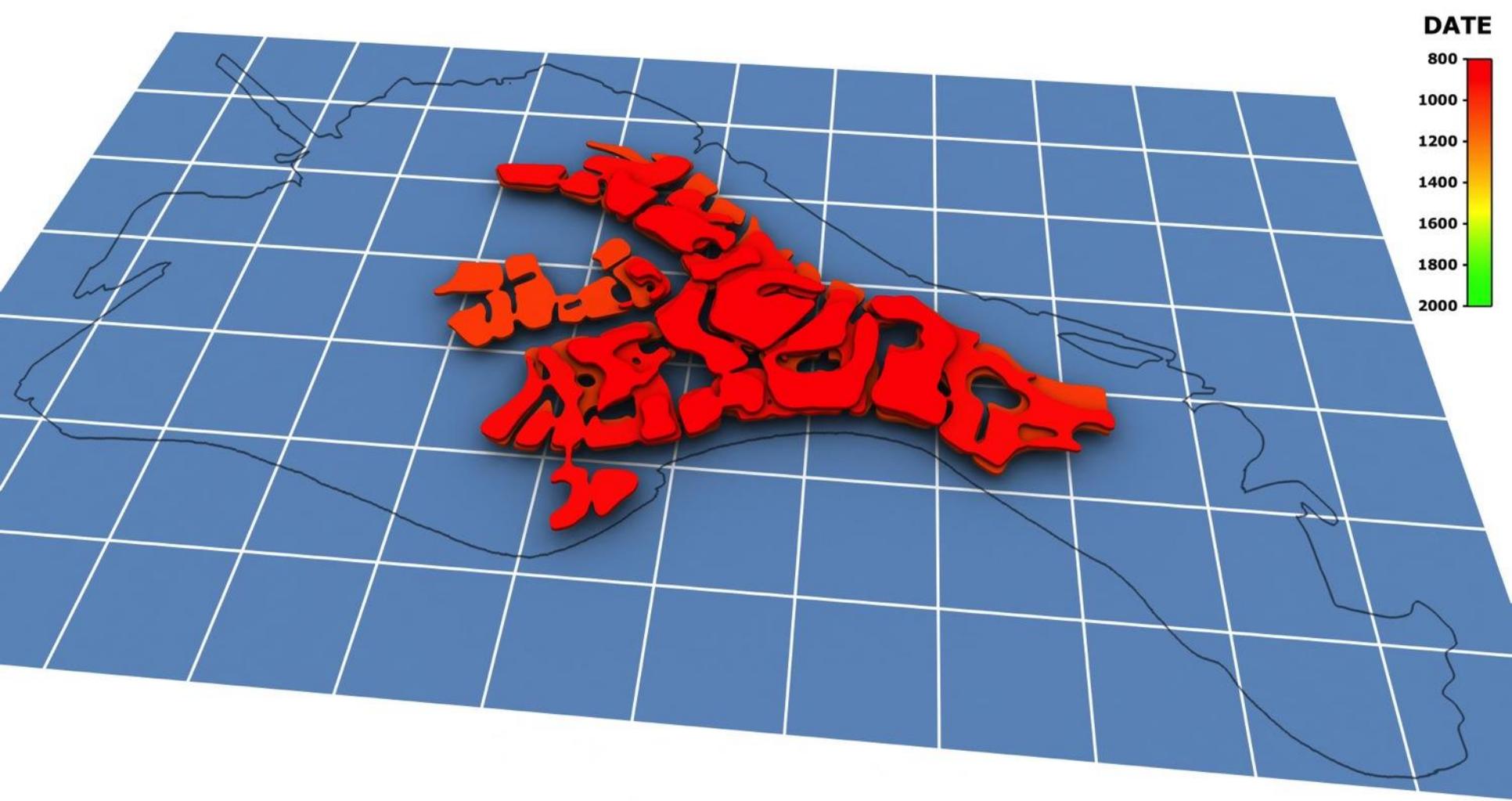
Die secunda Martij .1513.

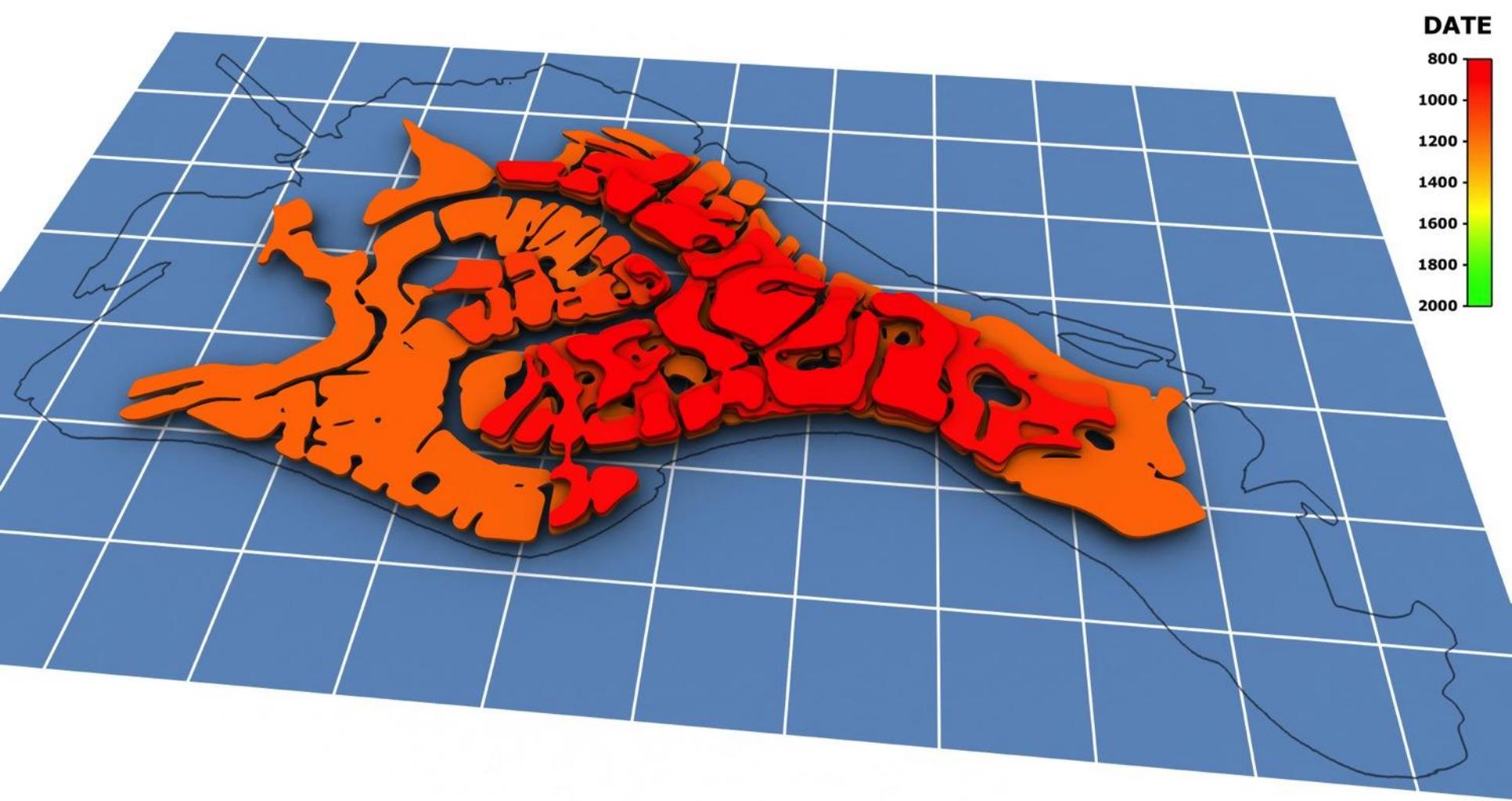
Cum de mense Januarij preterito per quosdam incognitos facta per eos seditione  
et adunationem plurimum barcharum et hominum accesserint sepius nocturne  
ad vallem di Bombai ducatus venetiarum et violenter fractis clausuris dices  
plurima damna et violentias in ipsa valle commiserunt, piscando per illam  
auferrendo aggressum faciendo cum armis uersus custodes dictae valle  
fugando prorumpendo et in crudelissimas blasphemias omnipotentis Dei  
se Virginis Maris eius Matris cum damno et subtractione plurima fructuum  
victoris Bognolo di Susti condudorum dictae valle. & faciat pro debito  
uenire in lucem et notitiam predictorum in auctoritatem. Ideo vniu. pa.  
Q. auctoritate huius consilij proclamet super scabis R. mo alti et alibi ubi  
tunc Advocatoribus Communis. & qui accusabit malefadores ipsos Advocatoribus  
sic q. per eius accusam veritas habeat. Habeat ipse accusator libras mille  
teneat secretus: et si per eius accusam malefadores uenerint in fortibus  
H. n. habeat ipse accusator libras mille quingentas et teneat secretus  
ut dictum est fuerint plures uno ad ipsos excessus committendos. Et in  
captum. Et si unus eorum accusabit socios culpabiles Advocatoribus Co.  
per eius accusam habeat veritas, habeat ipse accusator predictas libras  
Teneat secretus et sit absolutus non solum a p. n. delicto, verum et  
alio delicto furti commisso per eum hactenus non manifestato et in lucem  
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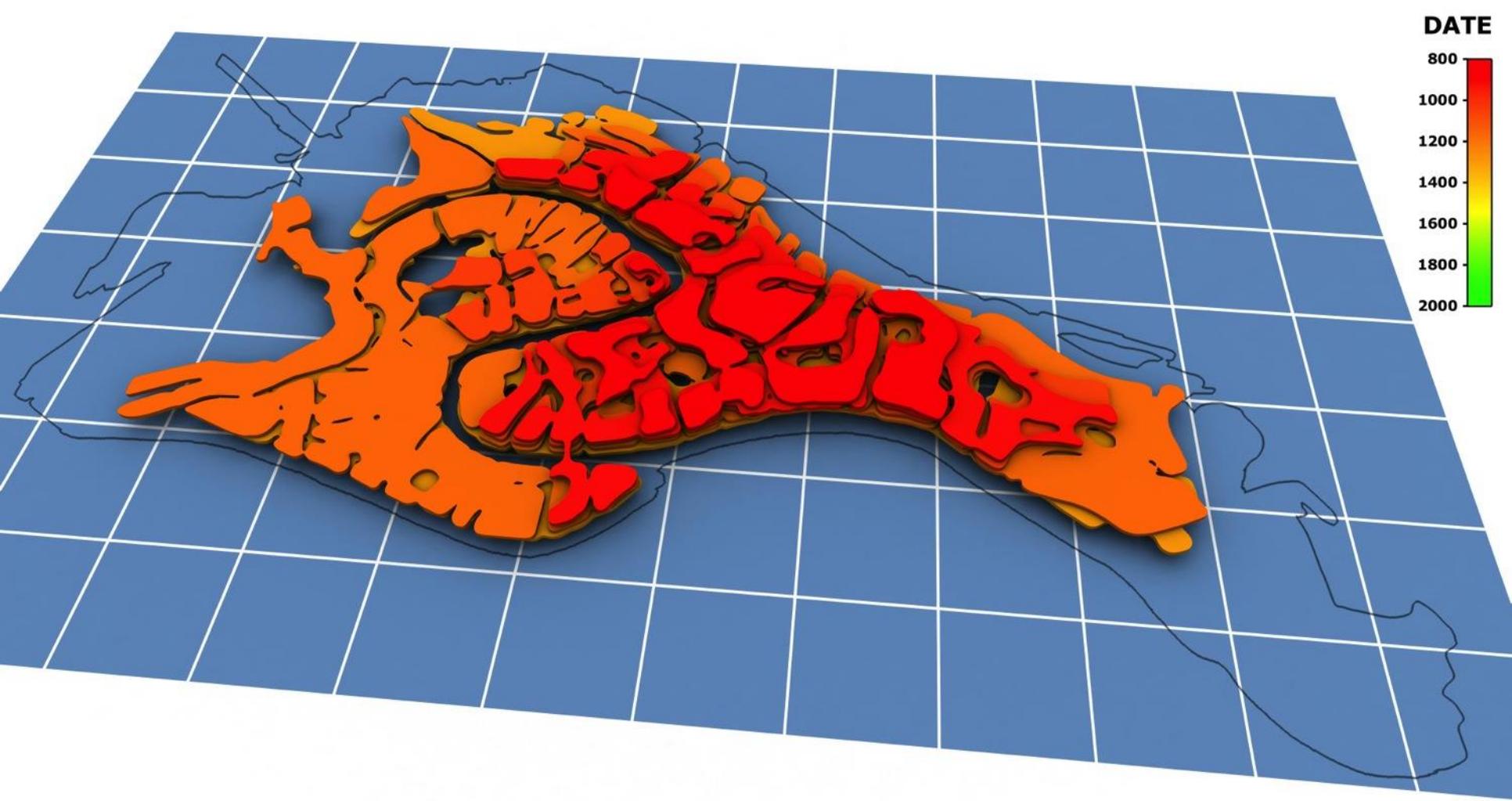


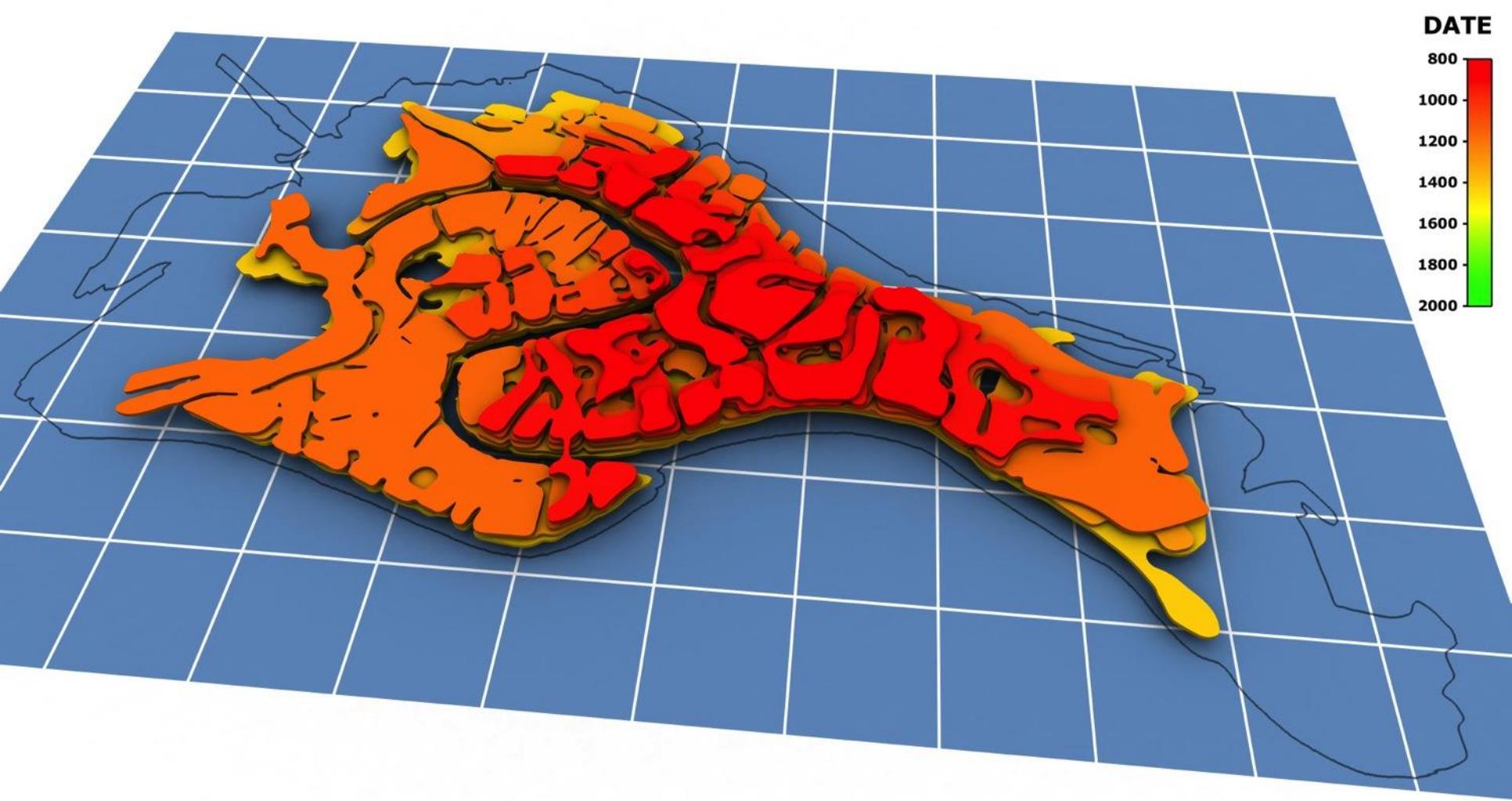


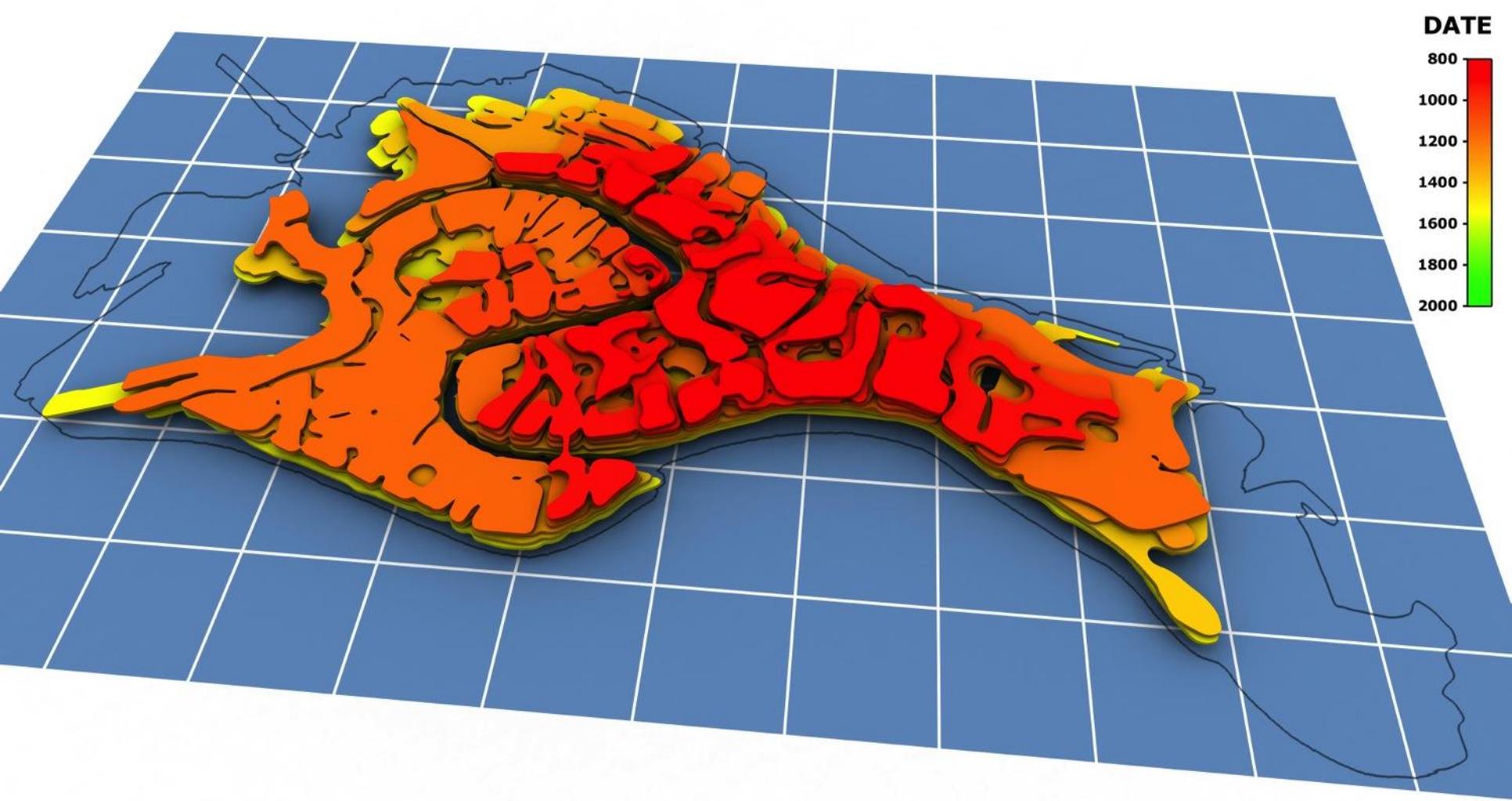


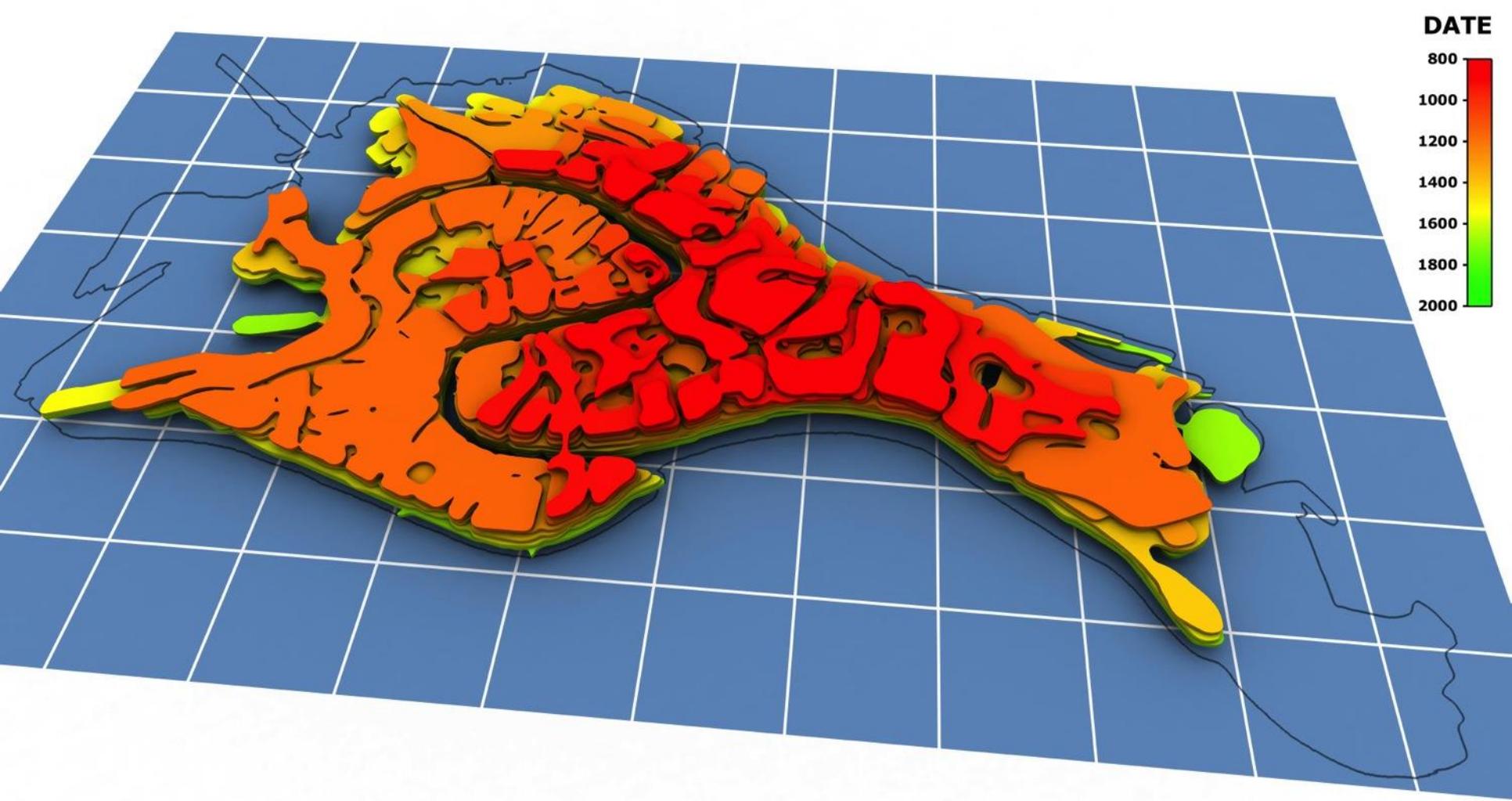


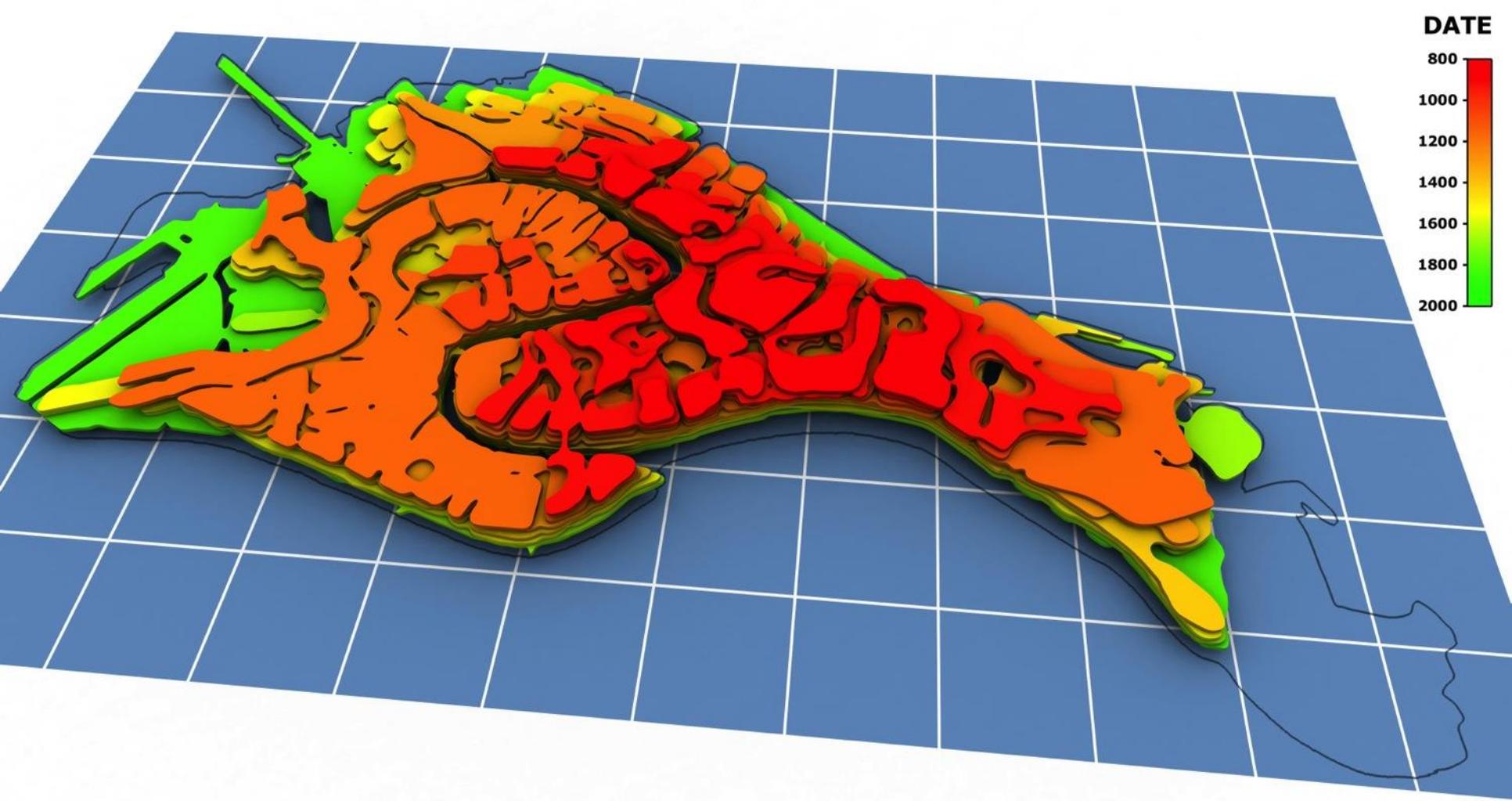


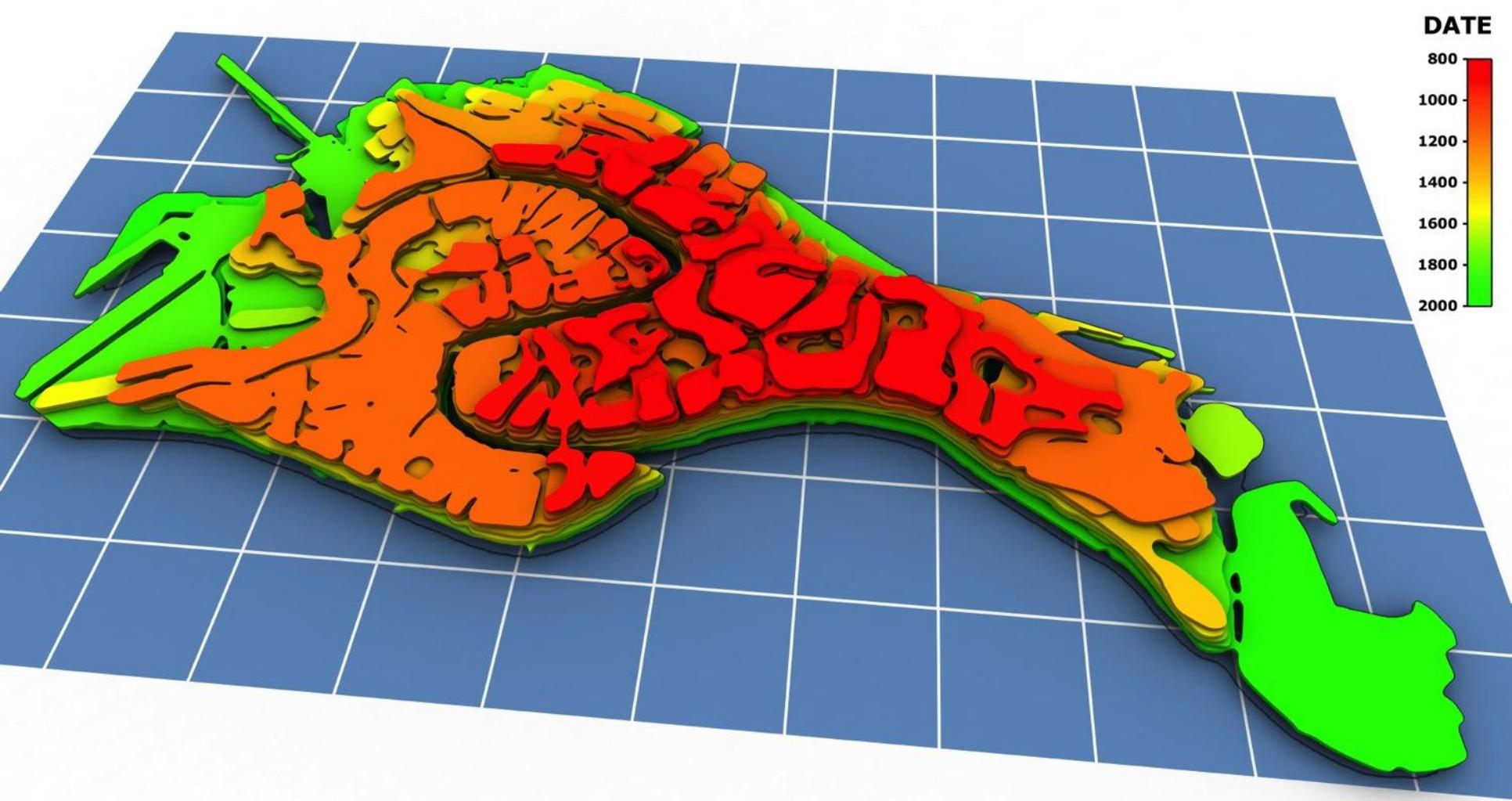














**900**



**1000**



**1200**



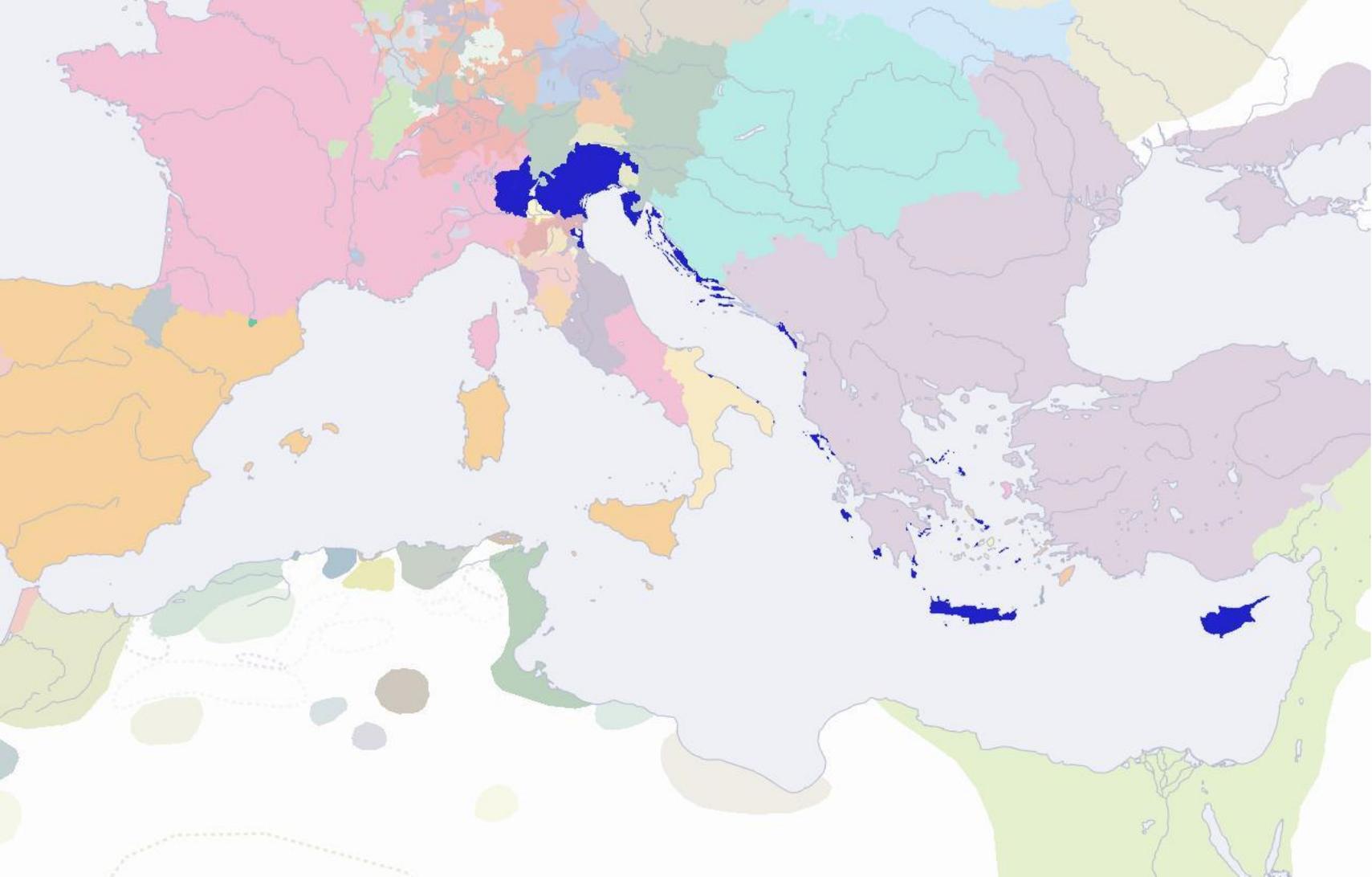
**1300**



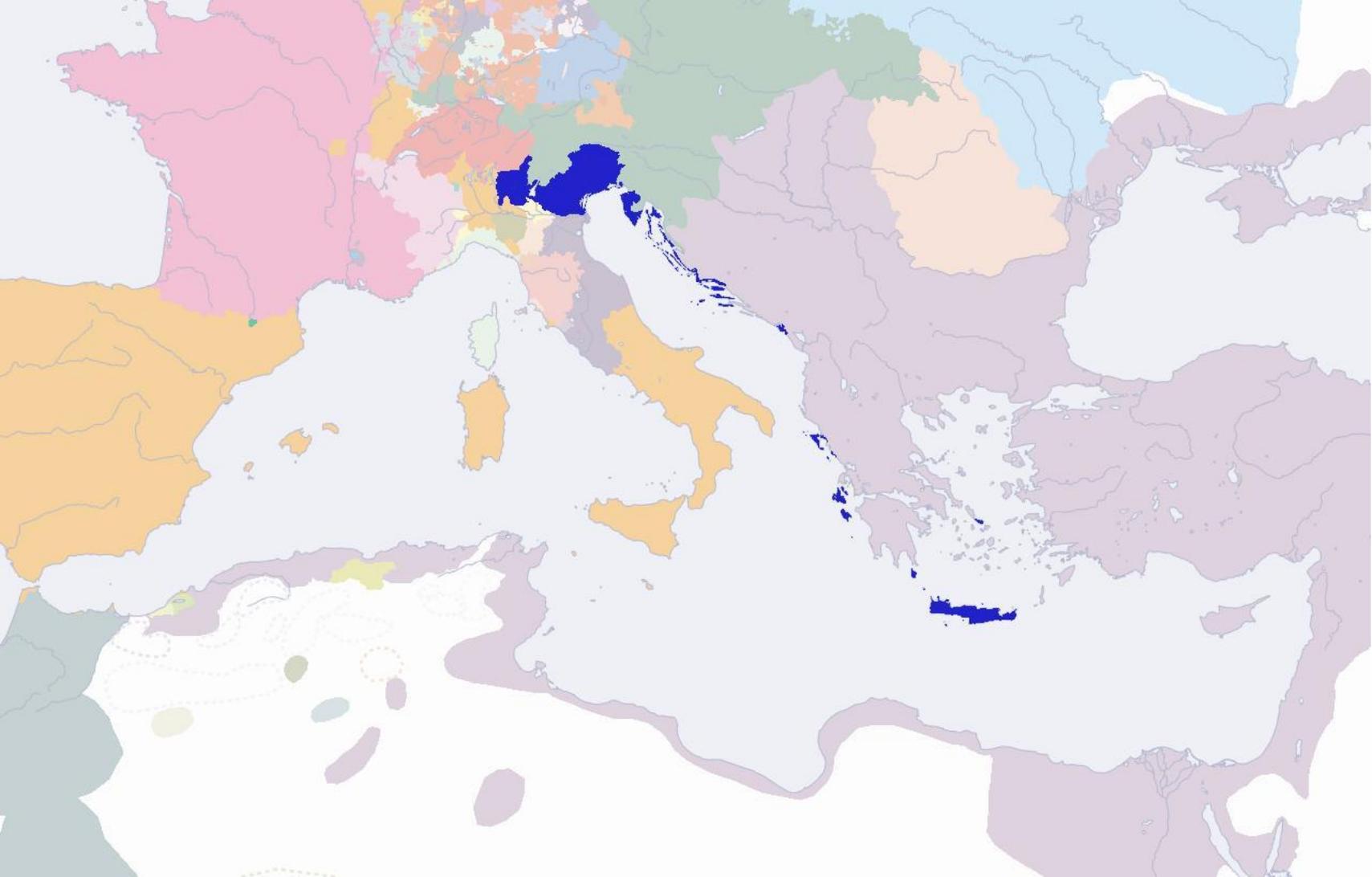
**1400**



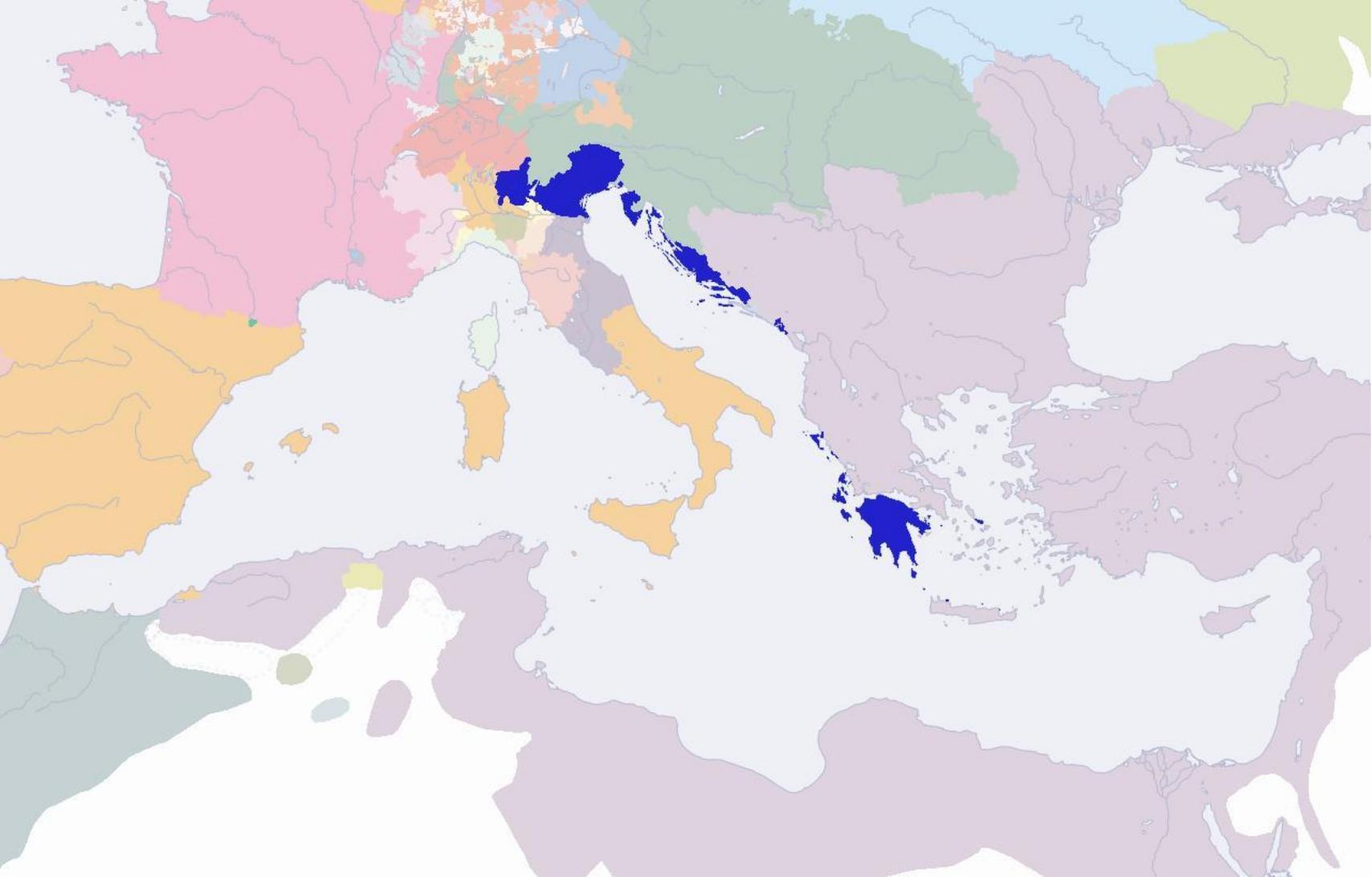
**1500**



**1600**



**1700**



**When can I take a boat  
if I am in Corfu in June  
1323 and what to go to  
Constantinopoli ?**

**How much will it cost ?**

**What are the risks of  
encountering pirates ?**



A detailed painting of a Venetian canal scene, likely by J.M.W. Turner's 'Rain, Steam, and Great Bridges' or a similar work. The scene is filled with numerous gondolas and other boats on the water. In the background, the large dome of St. Mark's Basilica is prominent on the left, and various Venetian buildings line the canal. The overall atmosphere is one of a busy, historic city. A dark grey rectangular box is overlaid on the center of the image, containing the text.

# Scientific and technological challenges

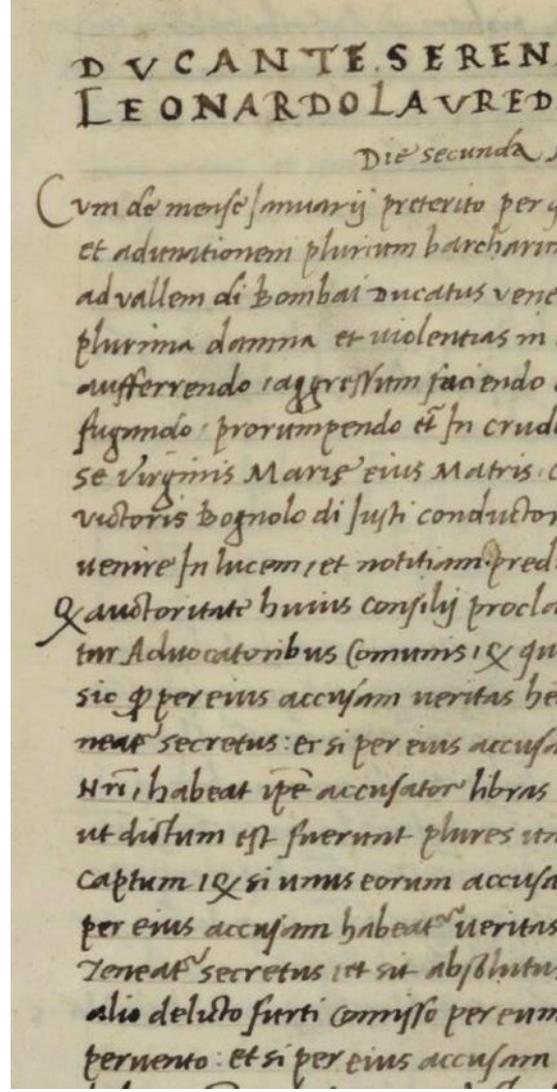
We can digitize this  
archive in 10 years with  
traditional scanning  
techniques  
(450 volumes / day)



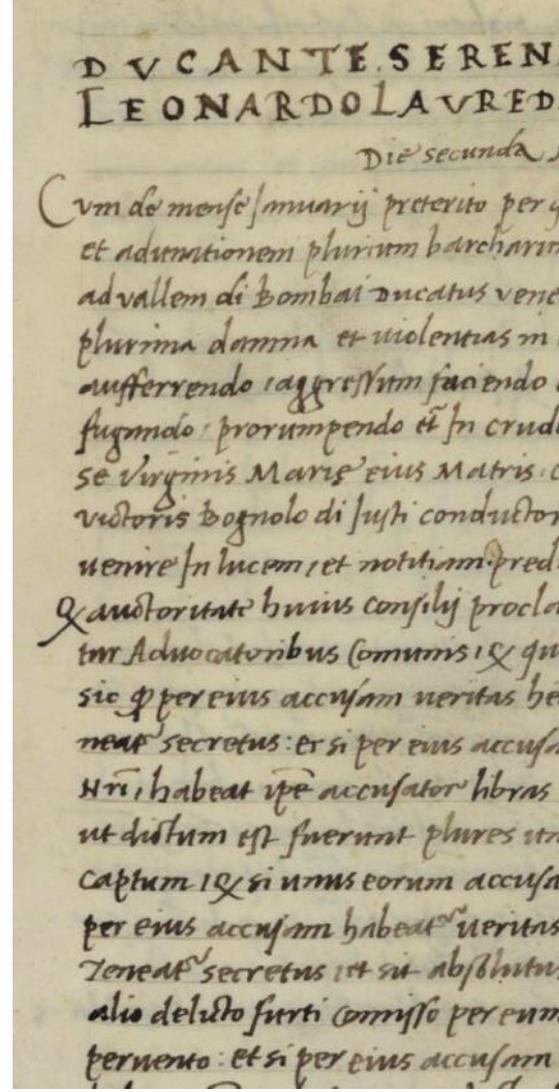
We are working on new scanning techniques to reach 2000 vol. / day.



Traditional optical character recognition methods have only limited success in transcribing handwritten documents.



The solution is to use precise computational linguistic models of medieval Latin and other ancient languages.



The central scientific challenge of the project is **qualifying, quantifying and representing** uncertainty and inconsistency at each step of this process.

This implies not only to model historical information, but to model **each step of the construction of historical knowledge.**

Our system is based on the notion of “**fictional space**” (e.g. coherent data coming from a given source, interpreted in a given way)

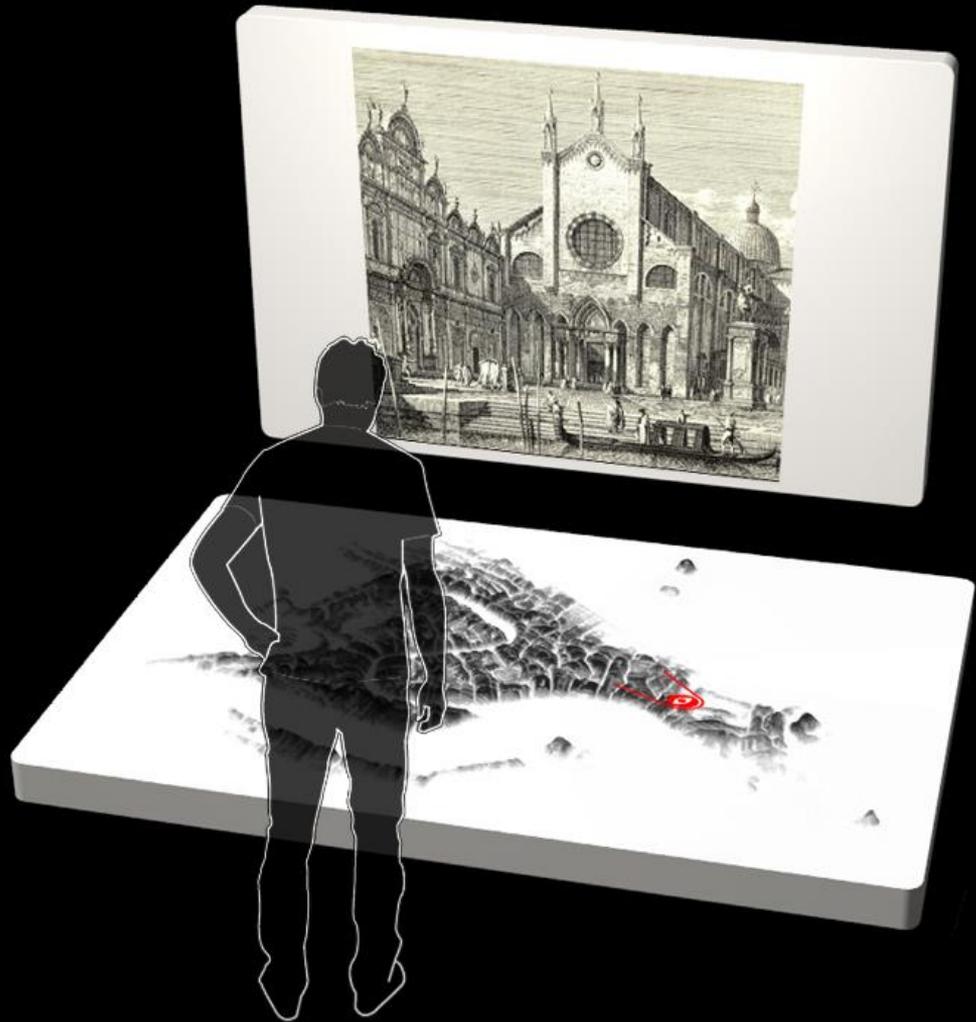
The crucial moment is when you **merge** two “fictional spaces” to create a larger dataset.

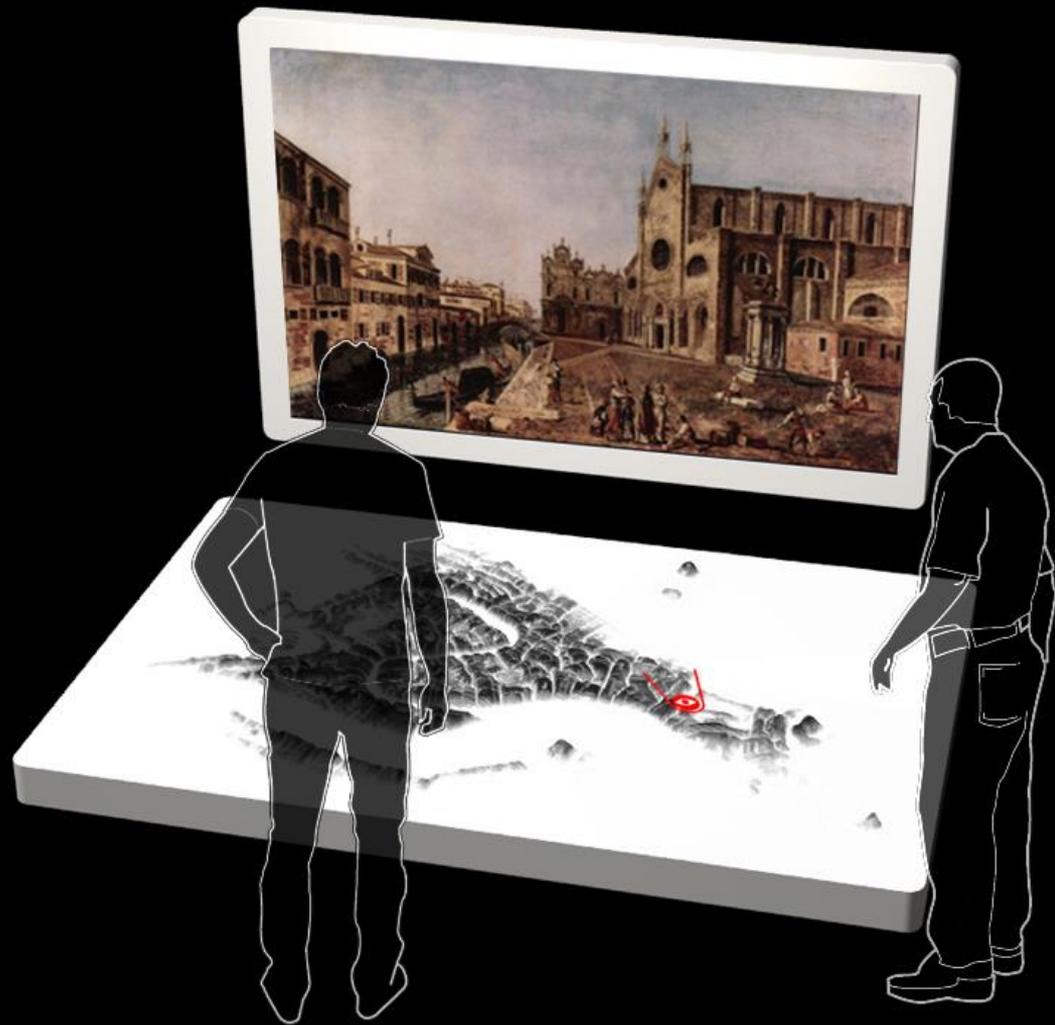
Our system does not guaranty that you do this fusion in the right manner but **document precisely** how you do it, enabling to undo the operation if needed.

It also signals **inconsistencies** between two “fictional spaces” and permits to implement rules to solve them.

Nevertheless, it does not guaranty the convergence towards a single model of the past.

We will not reconstruct *the*  
Venice of the past but build a  
machine for reconstructing *all*  
*the possible Venices*  
corresponding to different  
sources and interpretations.











Il nous reste un mystère à résoudre.

**POURQUOI LES TROYENS  
PORTENT-ILS CES ÉTRANGES  
COIFFES ARQUÉES ?**

Research in the Humanities  
is about to undergo an  
evolution similar to what  
happened to life sciences  
30 years ago.

This evolution is characterized by projects at **a new scale**, beyond what any single research team can do.

We must foster a new generation of young scientists, through dedicated doctoral, master and bachelor programs.

“Digital Humanists” capable of reconstructing Big Data of the past and exploring Big Data of the present.

[dhlab.epfl.ch](https://dhlab.epfl.ch)

[frederic.kaplan@epfl.ch](mailto:frederic.kaplan@epfl.ch)  
[@frederickaplan](https://twitter.com/frederickaplan)

