

# **The HKUST Ancient Map of China Collection-the next step: from digital images to GIS and datamining**

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# Outline

- The HKUST Antique Maps of China Special Collection
- Digitization as preservation
- Digitization as enrichment
- Collaboration with the Pelagios Project
- Annotating Western and Chinese maps
- Further steps (geo-resolution, iconological analysis)

## The UST library and its map collection

- UST map collection: 100+ ancient European printed maps of China and East Asia
- From Italy, the Low Countries, France, Germany, England
- An exhibition is currently on at the library:
- <http://library.ust.hk/special/tartary/tartary.html>

# World Map from the Nuremberg Chronicle of the World (Schedel, 1493)



**Q**uod dicitur a rota et est quilibet figura spherica et rotunda. Et video mundus orbis dicitur quod rotundus est et dicitur orbis terre vel orbis terra. Dicitur autem secundum vincentium filium sem obtinuisse asiam. filium chanaan affricam et filium iaphet europam. Iudaei in libro ethyopiensi asserunt quod orbis diuisus est in tres partes sed non equaliter. Nam asia a meridie per orientem usque ad septentrionem peruenit. Europa vero a septentrione usque ad occidentem peruenit. Sed affrica ad occidentem per meridiem se extendit. Sola quoque asia

continet unam partem nostre habitabilis. scilicet medietatem alie vero partes. scilicet affrica et europa aliam medietatem sunt sortite. Inter has autem partes ab oceano mare magnum progreditur. easque intersecat: quapropter sit in duas partes orientis et occidentis orbem diuidas in una erit asia in alia vero affrica et europa. Sic autem diuiserunt post diluuium filii Noe: inter quos Sem cum posteritate sua asiam. Iaphet europam: et abam affricam possederunt. ut dicit glo. super Gen. x. et super libro Paralippo. primo. Idem dicit L. in solomus Ipsi torus et Plinius.

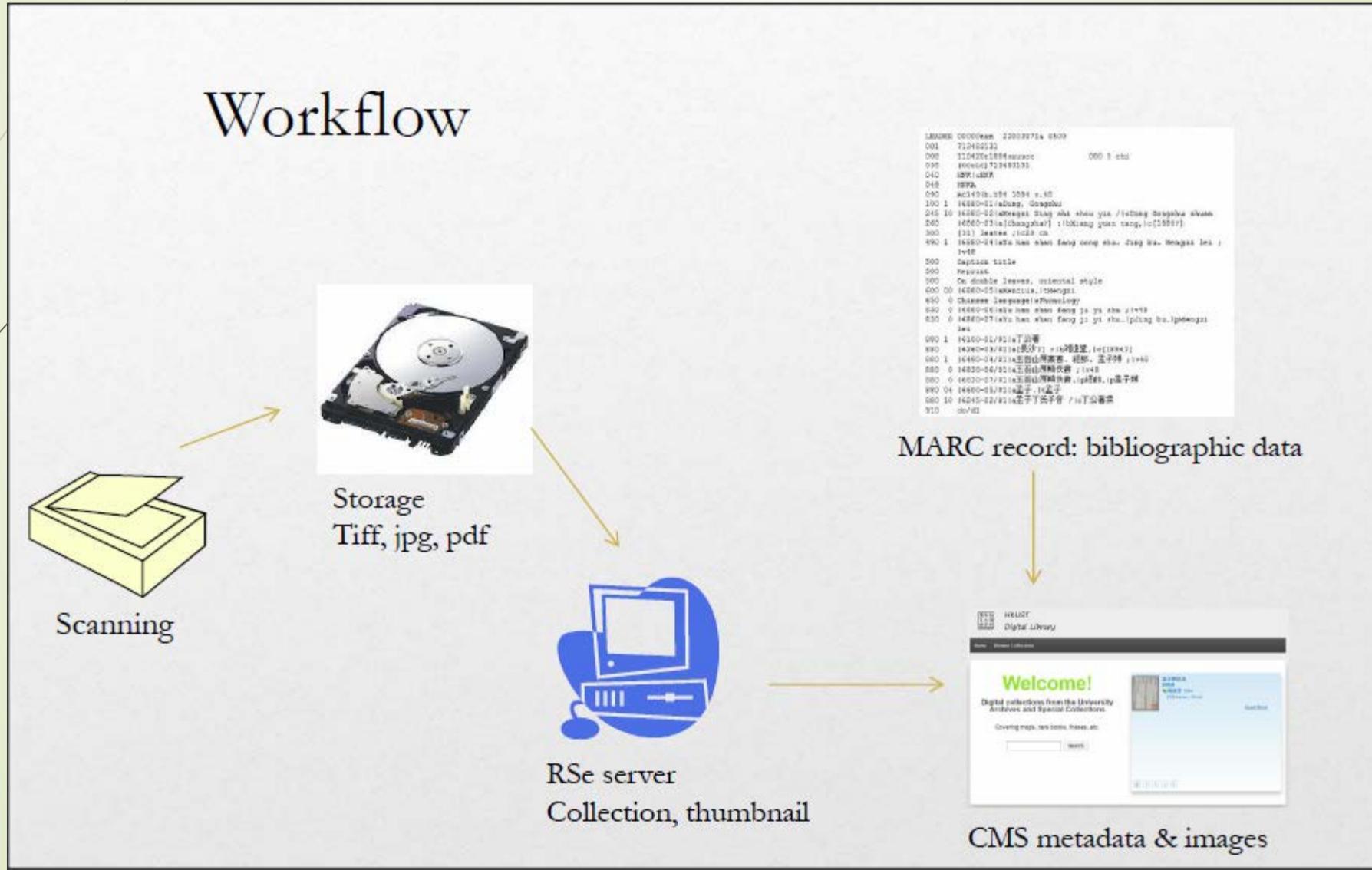


## The kingdom of China (Speed, 1627)





# Digitization as preservation



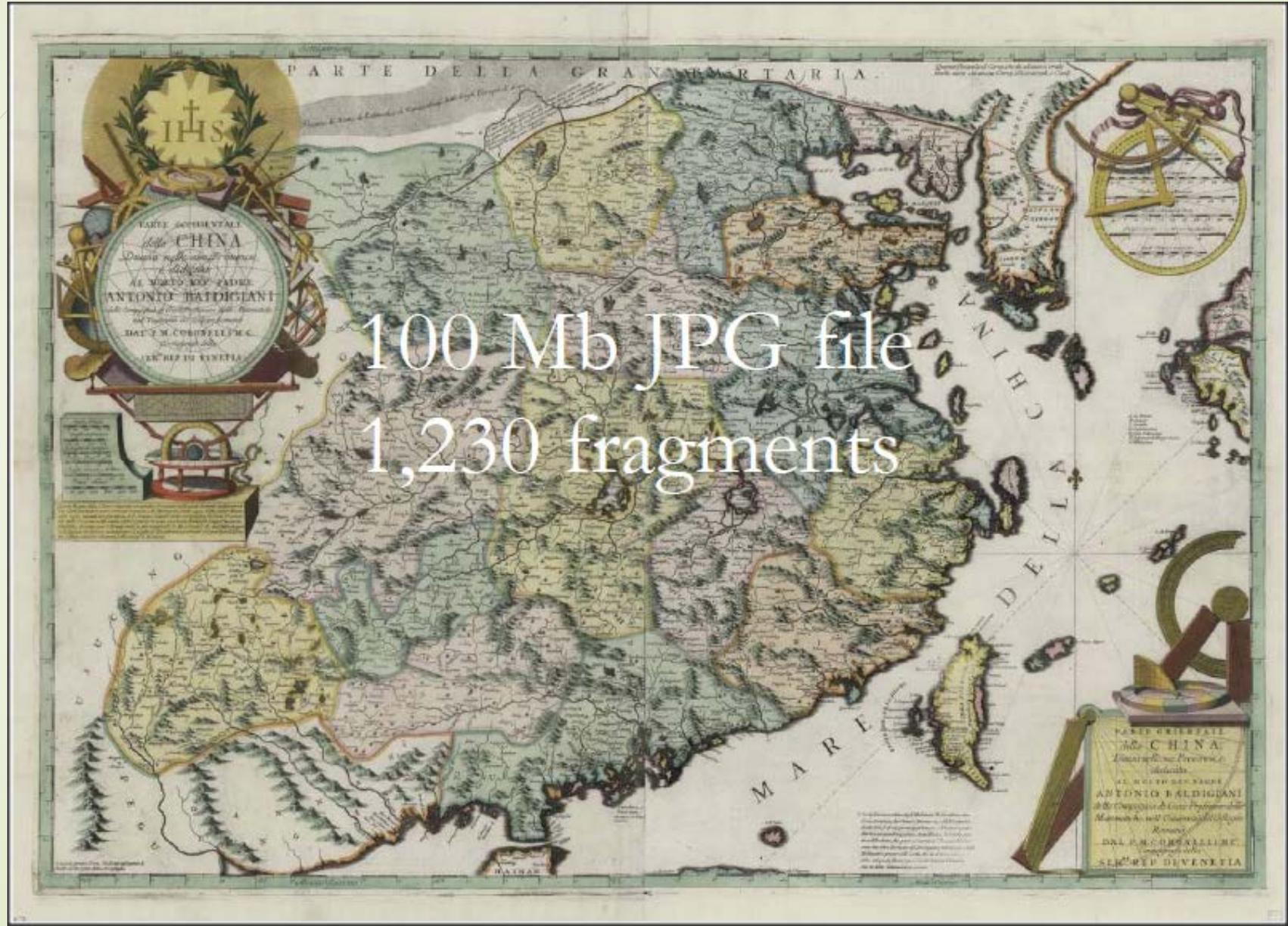
# Digitization process

9



# Digital images

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# Rare & Special e-Zone

<http://lbezone.ust.hk/rse/>

*Rare & Special e-Zone*  
古籍及特藏閱覽區

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- Pictorial works (18)
- Coasts (5)
- World maps (4)
- Harbors (3)

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Collection

- Antique Maps of China (142)

Document type

- map (142)

Geographic region

- China (59)
- Guangdong (15)
- Southeast Asia (15)
- Asia (12)
- Macao (10)

Regnum Chinae

A correct chart of the China Seas contain...

Mont van der Rivier Chincheo in China

China

A map of China drawn from those of the p...

View of Hong Kong, China

Parte occidentale della China divisa nel...

Quantung imperii sinarum provincia duode...

# Digitization as enrichment

Digitized maps increase accessibility, but are static surrogates of the originals.

The next steps:

- Transcribe old place names
- Identify their modern counterparts
- Link them to modern maps (geo-resolution)
- Analyze them as visual objects (image indexing)

# Pelagios project: text based, modern maps

Homer: Iliad (Book 2) (760 - 710 BCE)

Text Geo-Resolution Document Stats

οὐδ' εἴ μοι δέκα μὲν γλῶσσαι, δέκα δὲ στόματ' εἶεν,  
 φωνὴ δ' ἄρρηκτος, χάλκεον δὲ μοι ἦτορ ἐνείη, (490)  
 εἰ μὴ Ὀλυμπιάδες Μοῦσαι Διὸς αἰγιόχοιο  
 θυγατέρες μνησαίαθ' ὅσοι ὑπὸ Ἴλιον ἦλθον·  
 ἀρχοὺς αὐτῶν ἐρέω νῆας τε προσπάσας.  
 Βοιωτῶν μὲν Πηνέλεως καὶ Ληϊτός ἦρχον  
 Ἀρκεσίλαός τε Προθοήνωρ τε Κλονίος τε, (495)  
 οἳ θ' Ὑρίην ἐνέμοντο καὶ Αὐλιίδα πετροήεσσαν  
 Σχοῖνον τε Σκῶλον τε πολύκνημόν τ' Ἐτεωνόν,  
 Θέσπειαν Γραιάν τε καὶ εὐρύχορον Μυκαλησσόν,  
 οἳ τ' ἀμφ' Ἄρμ' ἐνέμοντο καὶ Εἰλέσιον καὶ Ἐρυθράς,  
 οἳ τ' Ἐλεῶν' εἶχον ἠδ' Ὑλην καὶ Πετεῶνα, (500)  
 Ὠκαλέην Μεδεῶνα τ' εὐκτίμενον πτολίεθρον,  
 Κῶπας Εὐτρησιν τε πολυτῆρωνά τε Θισβην,

Place names from Homer's Iliad shown on a georeferenced map

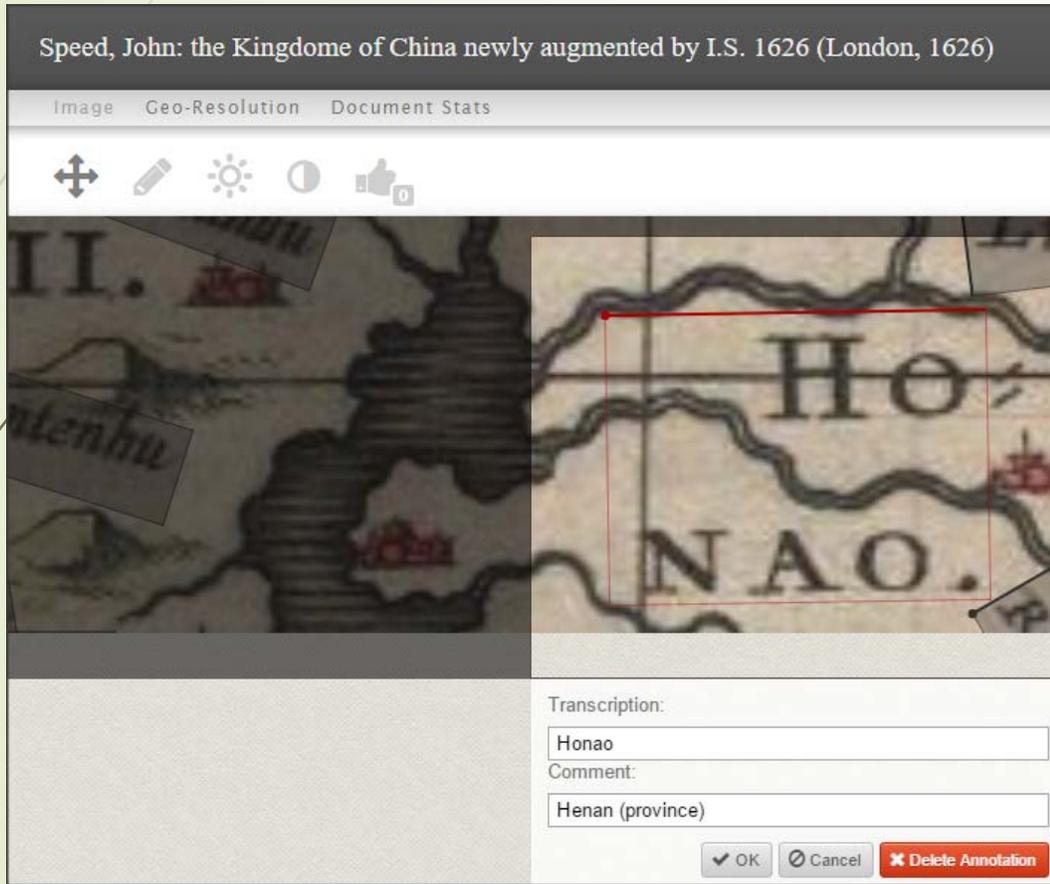
<http://commons.pelagios.org/>

# Recogito project: image based, ancient maps



Speed's map of China (left) and the same map with image annotations (right)

# Transcribing and identifying locations



Quadrant	Text	Chinese
C3		
D2, E2		
D1		
D1		
C2		
D1		
B1		
B1		
B2		
C1, D1		
B2		
B1	Agouro.	
C2	Chiquiano.	
D3	Cichio.	
C2	Cipuaon.	
C3	C.de liam:   po.	
D3	Honao	Henan 河南
D2	Hoquai.	
B2	C.Huquia	
E1, E2	C.Lancam.	
D3	C.Liamton.	
C2	C.Naniquin.	
D2	C.Pamnihu.	
D2	C.Paquin.	Beijing 北京
D2	C.Pautim	

Details of place name annotation on Speed's map

Place names in Speed's map of China

# Challenges

The amount of annotation work is large.

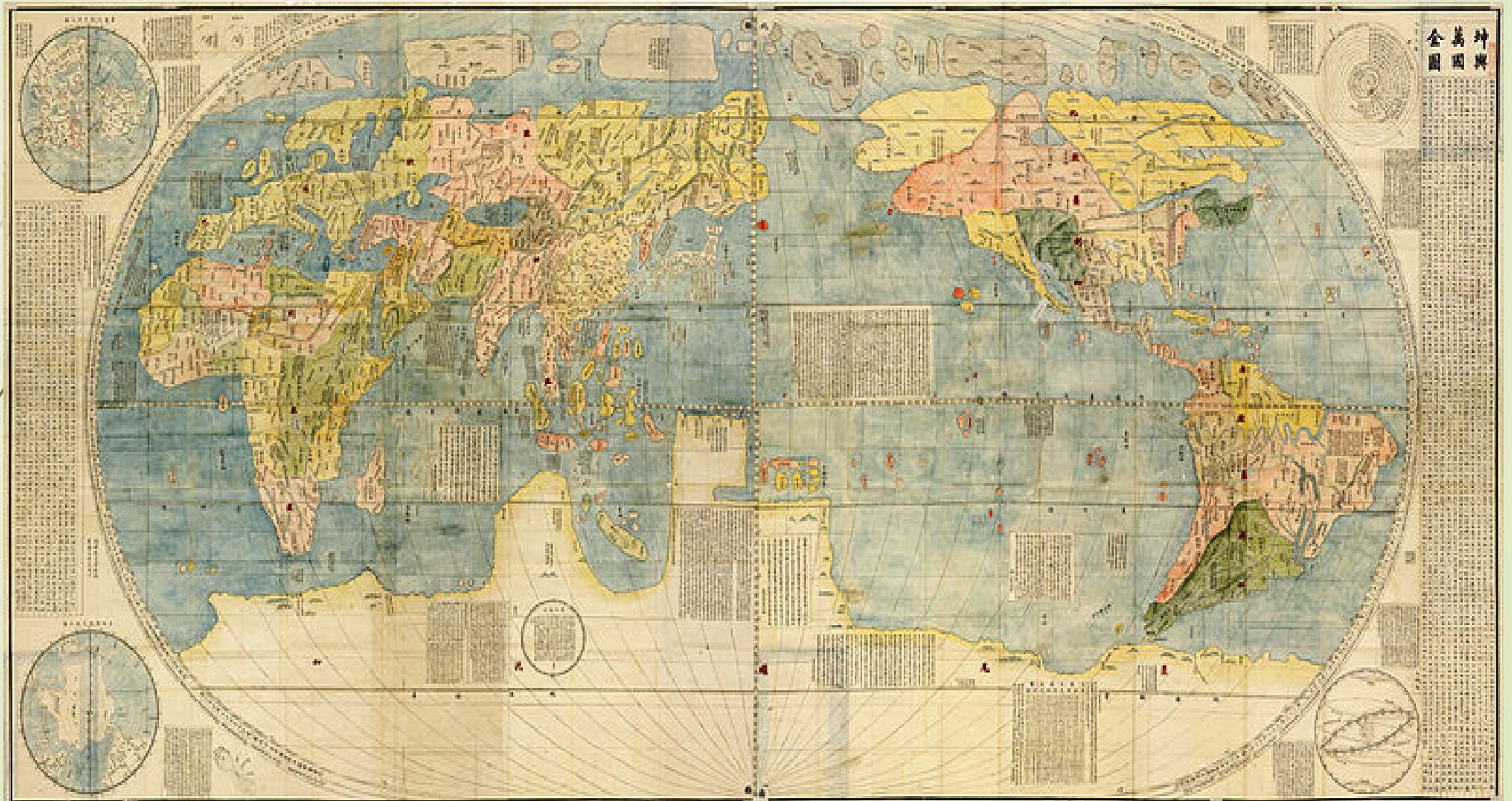
Crowdsourcing is an option.

But old western place names in the maps are:

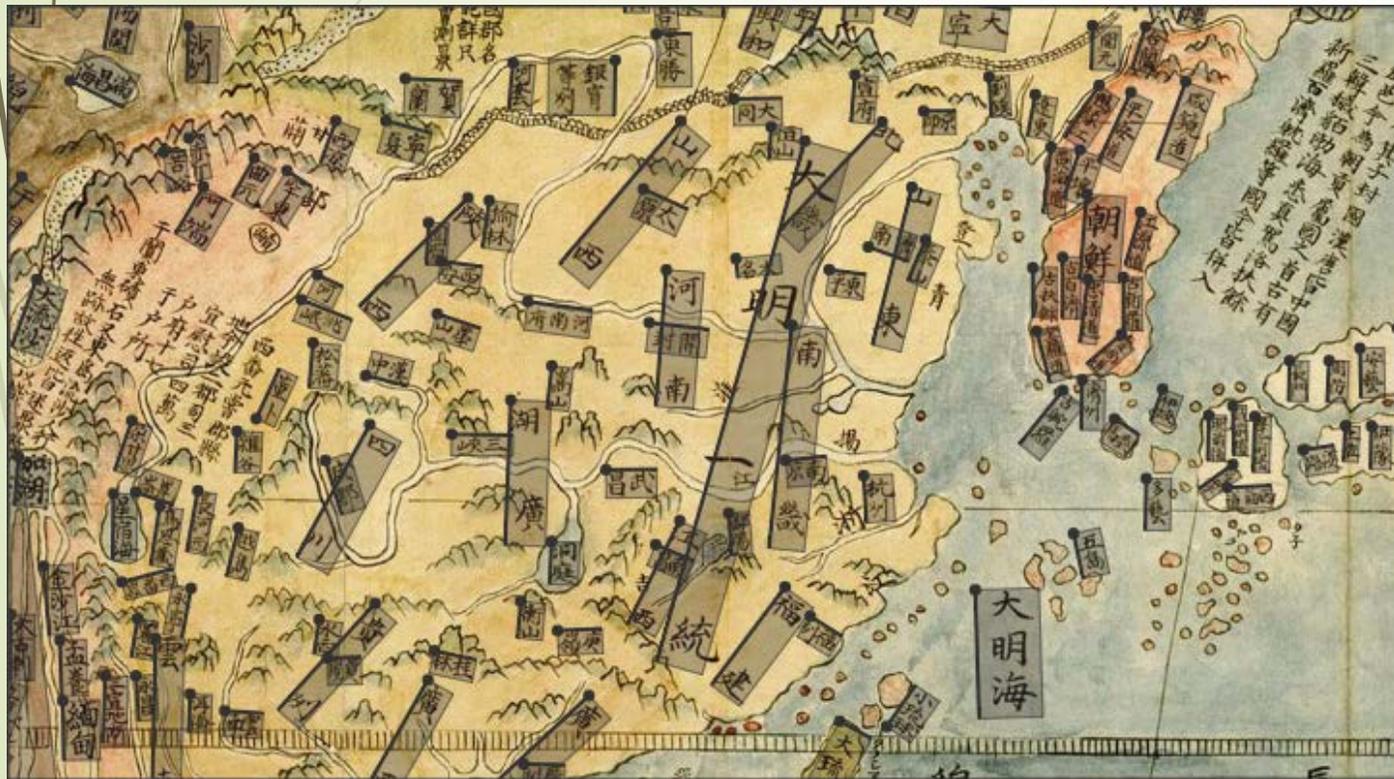
- difficult to identify
- non standardized
- difficult to read

# Matteo Ricci's Chinese World Map (1602)

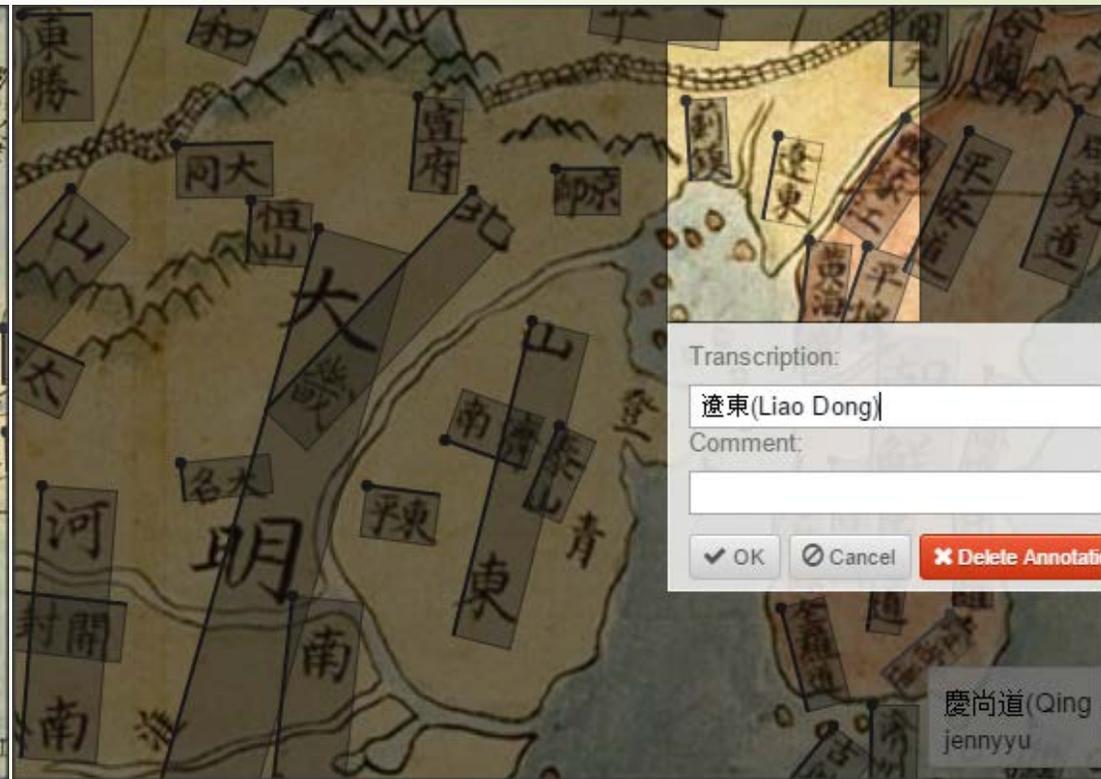
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# Transcriptions of Chinese map names



Detail of Ricci's annotated map of the world



Details of place name annotation on Ricci's map

# Advantages

- The map has been extensively researched.
- It is complementary to contemporary western maps.
- It can be used in the classroom: Chinese place names in the map are often non standard, but are easier for local students.
- It can be used by other institutions.

# Next steps:

## 1. Geo-resolution

Anonymous: Bordeaux Itinerary (333 CE)

Document Stats Text **Geo-Resolution**

#	Toponym	EGD Part	Tags	Auto Match	Corrected	Status
19	bucconis	Part 1	change		pleiades:246260	✓
20	ad iouem	Part 1	change		pleiades:246136	✓
21	tholosa	Part 1	civitas		pleiades:246694	✓
22	ad nonum	Part 1	change		pleiades:246137	✓
23	ad vicesimum	Part 1	change		pleiades:246143	✓
24	elusione	Part 1	halt		pleiades:246381	✓
25	sostomago	Part 1	change		pleiades:246660	✓
26	hebromago	Part 1	vicus		pleiades:246413	✓
27	cedros	Part 1	change		pleiades:246320	✓
28	carcassone	Part 1	castell...		pleiades:246294	✓
29	tricensimum	Part 1	change		pleiades:246706	✓
30	hosuerbas	Part 1	change		pleiades:246720	✓
31	narbone	Part 1	civitas		pleiades:246347	✓
32	beterris	Part 1	civitas		pleiades:148056	✓
33	cessarone	Part 1	halt		pleiades:147997	✓
34	oro domiti	Part 1	change		pleiades:148081	✓
35	sostantione	Part 1	change		pleiades:148202	✓
36	ambrosi	Part 1	change		pleiades:147990	✓
37	nemauso	Part 1	civitas		pleiades:148142	✓
38	ponte aerarium	Part 1	change		pleiades:148160	✓
39	arelate	Part 1	civitas		pleiades:148217	✓
40	burdigala	Part 1	Summ...		pleiades:138248	✓
41	arelate	Part 1	Summ...		pleiades:148217	✓
42	arnagine	Part 1	change		pleiades:148074	✓
43	bellinto	Part 1	change		pleiades:148019	✓
44	auenione	Part 1	civitas		pleiades:148004	✓
45	caresseta	Part 1	change		pleiades:148065	✓
46	grausone	Part 1	civitas		pleiades:148054	✓

613 Annotations 582 27 0 0 - 99.5% Complete

You are logged in as rainer

Geo-resolution of Roman place names from Recogito

# Next steps:

## 2. Iconological analysis of cartouches

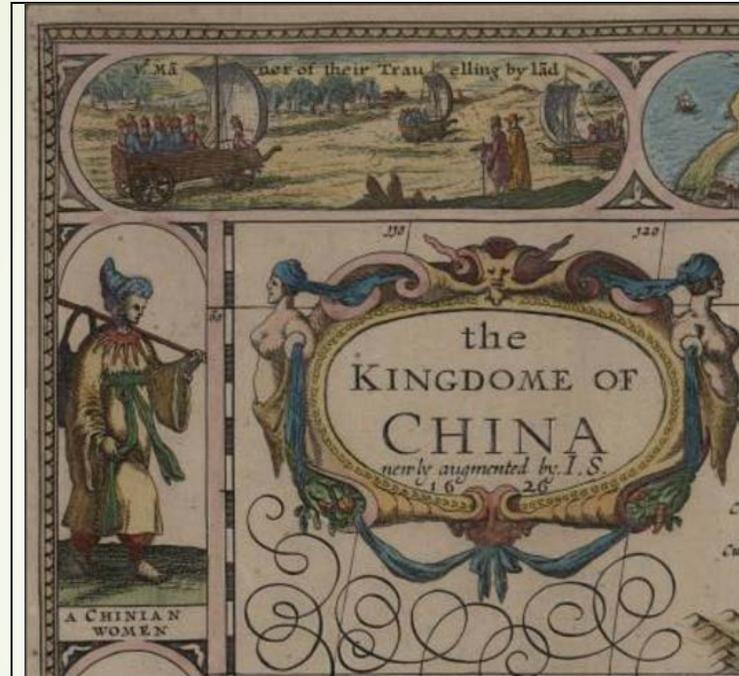


Fig. 10 Top left corner of Speed's map of China



Fig. 12 Source of Speed's image  
Linschoten, *Itinerario*, 1596.

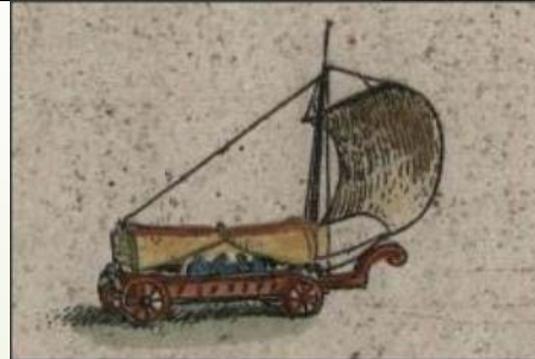


Fig. 13 Source of Speed's image  
Ortelius, Map of China, 1584

# Conclusion

- Ancient maps are both textual and visual objects.
- They acquire meaning by being compared with other texts, other images, other maps.
- Digitization can increase both accessibility and knowledge.
- It can address both scholars and the general public, as users and as creators.