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Local Map Scale Exaggerations of Island and Port Representations on Late-Medieval and Early Modern Navigational Charts of the Adriatic Sea

Tome Marelić [a,*], Julijan Sutlović [a]

[a] *University of Zadar, Department of Geography – tmarelic@unizd.hr, jsutlovic21@unizd.hr*

* Corresponding author

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Abstract:

Local map scale exaggerations of coastal elements are well known feature of late-medieval portolan charts, which continued, to a certain extent, to exist as an integral part of later-produced navigational charts, but the reason why those exaggerations were made is still not fully clarified. Scott A. Loomer (1987) believed that they were the result of cartographers' highly detailed knowledge about the areas represented on charts. Jonathan T. Lanman (1987) believed that portolan chart authors, although they possessed detailed spatial information on a local level, rendered the coastline representations too sketchy, while Tony Campbell's (1987) reasoning is that the exaggerated parts represented locations which were of greater importance for navigation.

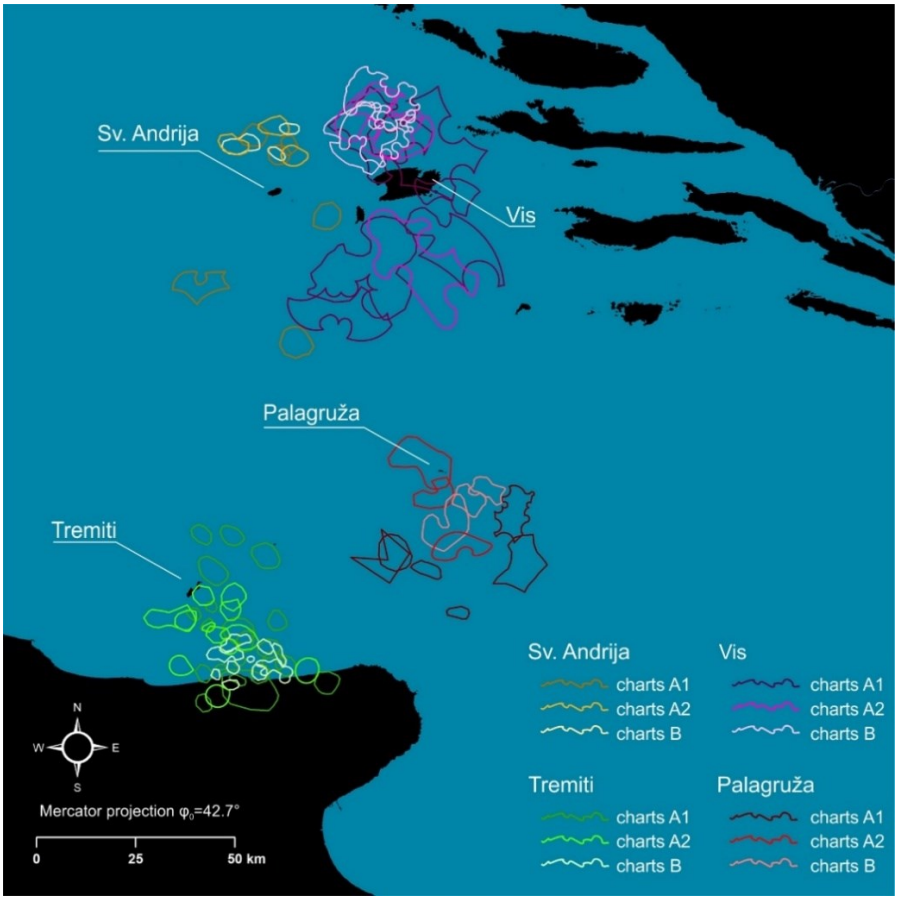

Figure 1. Vectorized renderings of coastline representations of four Adriatic Sea islands and island groups on selected late-medieval and Early Modern navigational (portolan) charts, which show substantial levels of local map scale exaggeration. Basemap shapefile source: marineregions.org (Claus et al., 2017)

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The main research goal is to examine local map-scale exaggerations on navigational charts of Adriatic Sea, made in late-medieval and Early Modern period (manuscript portolan charts and printed navigational charts on some of which graticule is plotted). After that, the local map-scale exaggerations database will be used to determine A) is there any chronological trend of decline of those exaggerations or not, B) which charts show elements of copying the representations of coastal outlines from some previous cartographic works, and C) are those cartographic exaggerations related to historical or navigational importance of those geographical features or not. Preliminary research was conducted on a sample of twelve portolan charts; six standalone examples ('charts A1') made in smaller map scale, and three pairs of charts made by three different cartographers who produced chart-bindings in which they represented the Adriatic Sea both in a smaller ('charts A2'), and in a larger ('charts B') map scale. The preliminary results showed that selected ports and islands were made in a local scale (SCF_{LOC}) which is about 4.6 times larger than the average map scale (SCF_{AVG}) of charts themselves – values were computed by using the *local map-scale-exaggeration index* (LMSEI) metric (Table 1, Figure 1), which will be explained in more detail and on the broader chart sample during the presentation.

		CHARTS A1			CHARTS A2			CHARTS B		
		SCF_{AVG} A1	LMSEI	SCF_{LOC}	SCF_{AVG} A2	LMSEI	SCF_{LOC}	SCF_{AVG} B	LMSEI	SCF_{LOC}
PORT	Ancona		2.4	1,903,526		3.8	1,411,314		2.6	651,625
	Bar		3.2	1,420,821		2.9	1,805,012		1.9	923,558
	Bari		3.9	1,172,819		5.3	999,116		2.8	625,074
	Brindisi		7.4	625,177		11.9	443,147		6.1	281,237
	Dubrovnik	4,600,000	12.1	379,091	5,300,000	15.1	350,782	1,720,000	9.5	180,714
	Ortona		7.1	644,976		6.7	789,869		3.7	461,845
	Otranto		3.3	1,390,904		4.9	1,070,120		3.1	562,060
	Pula		4.3	1,068,507		3.5	1,519,889		1.3	1,300,750
	Rimini		3.4	1,336,531		4.9	1,078,967		3.3	514,731
	AVG		5.2	1,104,706		6.6	1,052,024		3.8	611,288
	SD		2.9	453,071		3.9	453,386		2.4	316,771
ISLAND	Lastovo		2.8	1,617,999		3.2	1,652,940		2.5	684,034
	Mljet		1.4	3,340,977		1.1	4,638,550		1.0	1,708,094
	Palagruža	4,600,000	11.4	401,985	5,300,000	13.9	379,498	1,720,000	12.0	143,888
	Sv. Andrija		2.7	1,691,373		2.4	2,184,784		1.9	912,336
	Tremiti		4.3	1,080,205		5.1	1,043,497		3.2	537,170
	Vis		1.6	2,861,182		1.6	3,225,288		1.3	1,296,857
	AVG		4.0	1,832,287		4.6	2,187,426		3.7	880,397
	SD		3.4	1,000,994		4.4	1,411,148		3.8	509,632

Table 1. Local map scale exaggerations of certain ports and islands representations on selected late-medieval and Early Modern navigational (portolan) charts.

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