Mediterranean Marine Science

Vol 15, No 1 (2014)

Vol. 15, No 1 (unpublished)

Classification of sediments by means of Self-Organizing Maps and sediment quality guidelines in sites of the southern Spanish coastline

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doi: 10.12681/mms.506

Supplementary Data

["Classification of sediments by means of Self-Organizing Maps and sediment quality guidelines in sites of the southern Spanish coastline" O. Veses, R. Mosteo, M. P. Ormad and J. L. Ovelleiro , *Mediterranean Marine Science,* 15 (1), 37-44].

Appendix

Sediment sample characterization including all analytical values corresponding to each site belonging to the Spanish southern coastline is outlined in Table A.1. All sediment samples were collected in 2009.

Table A.1 Analytical values of sediment sample characterization. Cd, Cu, Ni, Pb, Zn, Hg, As, Cr, Li and Mn values are expressed in mg/kg dw. Al, Fe, fraction <0.63 µm, Total P, Total N and TOC are expressed in %wt.

Site	Cd	Cu	Ni	Pb	Zn	Hg	As	Cr	Li	Mn	Al	Fe	Fraction <63 µm	Total P	Total N	TOC
1	<0.5	*43*	*42*	27	*204*	*0.2*	*20.0*	71	41	852	7.9	4.3	22.4	0.04	0.12	1.2
2	<0.5	*63*	*46*	31	*216*	*0.3*	*24.0*	68	46	970	8.3	4.6	46.3	0.04	0.16	1.7
3	<0.5	*64*	*38*	30	*302*	*0.4*	*27.0*	64	57	614	7.3	4.7	51.2	0.05	0.21	1.1
4	<0.5	*42*	*31*	25	*212*	*0.4*	*19.0*	56	41	343	5.4	3.9	7.1	0.04	0.14	0.8
5	0.5	27	*28*	9	*222*	*0.3*	*12.0*	38	25	421	3.8	3.1	39.1	0.05	0.10	0.7
6	<0.5	*61*	*27*	28	*296*	*0.5*	*25.0*	72	51	312	5.9	4.1	16.4	0.04	0.27	2.3
7	<0.5	*68*	*30*	40	*387*	*0.6*	*31.0*	69	65	394	6.8	4.7	28.6	0.05	0.25	2.1
8	<0.5	*66*	*31*	37	*324*	*0.5*	*24.0*	68	60	401	5.6	3.4	33.2	0.03	0.18	2.0
9	<0.5	22	*41*	18	*258*	*0.4*	*11.0*	74	19	340	2.3	2.8	2.3	0.04	0.07	0.3
10	<0.5	*36*	*29*	15	*314*	*0.2*	*19.0*	62	31	242	6.3	3.6	49.3	0.05	0.18	2.1
11	<0.5	*60*	*31*	28	*296*	*0.2*	*18.0*	78	48	204	5.9	3.9	68.4	0.05	0.16	1.8
12	<0.5	*87*	*30*	42	*310*	*0.3*	*28.0*	74	56	296	5.8	4.0	73.2	0.04	0.18	1.4
13	<0.5	13	11	19	*232*	<0.1	*12.0*	46	11	285	2.4	2.2	8.3	0.04	<0.05	0.3
14	<0.5	27	6	13	*173*	*0.2*	*16.0*	29	10	239	2.6	1.6	2.4	0.04	0.05	0.3
15	0.8	**1,120**	16	**963**	**621**	**2.2**	**693**	*78*	25	114	5.4	10.0	10.4	0.83	0.36	3.6
16	*1.3*	**1,430**	*27*	**1,100**	**1,310**	**2.3**	**611**	*86*	39	183	5.6	9.3	21.3	0.89	0.29	2.5
17	*1.8*	**1,200**	*36*	**971**	**1,710**	**1.7**	**431**	*89*	38	253	6.0	7.9	36.5	0.83	0.22	1.6
18	*3.8*	**2,510**	*28*	**1,160**	**4,030**	**3.8**	**633**	*173*	47	276	6.0	13.0	57.2	1.40	0.33	2.0
19	*1.4*	**2,850**	*43*	**1,120**	**3,350**	**2.8**	**556**	*143*	69	414	5.8	9.8	67.7	0.96	0.30	1.4
20	0.6	**690**	20	**227**	**896**	**1.7**	**164**	*81*	39	162	5.3	6.0	50.8	0.27	0.18	0.7
21	0.8	**2,050**	**63**	**630**	**1,890**	**1.9**	**656**	*124*	75	1,100	5.6	10.0	6.4	0.94	0.32	2.1
22	1.1	**2,110**	*34*	**662**	**4,030**	**2.8**	**427**	*108*	110	408	7.6	8.7	79.2	0.73	0.33	2.1
23	*1.5*	**1,890**	*33*	**522**	**2,570**	**3.3**	**441**	*83*	141	370	8.1	7.8	50.5	0.52	0.21	1.8
24	0.9	**585**	*40*	*162*	**2,820**	**0.8**	**127**	*103*	61	539	7.0	6.4	21.8	0.10	0.20	1.6
25	*1.4*	**2,380**	*45*	**863**	**3,150**	**3.4**	**425**	*117*	74	543	6.2	9.6	64.6	0.85	0.22	2.1
26	*4.6*	**3,070**	*23*	**2,800**	**4,250**	**8.1**	**910**	*143*	53	368	6.4	12.0	58.9	1.20	0.18	2.1
27	*2.1*	**2,500**	**54**	**983**	**3,910**	**4.4**	**704**	*117*	73	515	7.6	9.7	70.3	1.10	0.20	2.1
28	*2.1*	**2,140**	48	**754**	**2,810**	**2.9**	**534**	*93*	74	399	4.8	8.4	16.1	0.66	0.18	1.6
29	0.6	**845**	**52**	**364**	**1,580**	**1.4**	**164**	*94*	34	494	4.4	4.5	1.5	0.11	0.10	0.9
30	<0.5	*56*	7	12	*267*	0.1	*21.0*	26	8	240	2.6	2.3	3.2	0.04	0.06	0.3
31	<0.5	*40*	9	22	*364*	*0.2*	*20.0*	29	12	288	2.0	2.6	2.7	0.03	0.06	0.3
32	<0.5	*205*	*25*	*84*	**487**	*0.7*	*54.0*	57	26	448	2.6	3.9	64.4	0.08	0.12	1.2
33	<0.5	*65*	10	33	*339*	*0.2*	*44.0*	33	12	201	2.0	2.1	1.5	0.04	0.05	1.1
34	<0.5	*45*	6	21	*270*	*0.3*	*21.0*	33	9	218	2.2	1.9	4.1	0.03	<0.05	0.8
35	<0.5	*39*	17	18	*325*	<0.1	*19.0*	29	7	220	1.6	1.8	7.9	0.03	0.06	0.9
36	<0.5	33	8	12	*177*	<0.1	*18.0*	29	6	349	2.2	2.1	8.1	0.02	0.08	1.6

(continued)

(continued) **Appendix Table 1.**

Site	Cd	Cu	Ni	Pb	Zn	Hg	As	Cr	Li	Mn	Al	Fe	Fraction <63 µm	Total P	Total N	TOC
37	<0.5	*42*	19	21	112	0.1	*10.0*	67	27	432	3.2	2.8	94.3	0.05	0.13	2.1
38	<0.5	*45*	*51*	26	*314*	*0.2*	*8.9*	78	31	782	5.2	3.0	96.9	0.04	0.17	1.8
39	<0.5	*49*	*29*	25	*226*	0.1	7.4	*82*	28	665	4.8	2.9	90.8	0.09	0.13	2.5
40	<0.5	*53*	*46*	19	*263*	*0.3*	5.5	71	29	665	4.8	3.1	96.8	0.09	0.16	2.1
41	0.5	*112*	*37*	**233**	*402*	*0.5*	*16.0*	69	26	793	4.2	2.8	43.0	0.13	0.18	1.8
42	<0.5	*58*	**52**	32	*223*	0.1	5.9	*82*	32	695	4.6	3.0	95.2	0.08	0.16	2.1
43	<0.5	*43*	*38*	21	*302*	*0.3*	6.3	53	22	416	3.8	2.4	86.4	0.11	0.17	1.8
44	<0.5	*43*	*44*	34	*213*	*0.4*	6.8	76	32	715	3.6	2.9	84.6	0.08	0.10	2.2
45	<0.5	*53*	*42*	25	*169*	0.1	*8.6*	*84*	40	843	4.2	4.0	80.7	0.08	0.16	2.1
46	<0.5	*56*	**59**	17	*384*	0.1	*9.2*	*88*	41	608	5.8	3.2	89.7	0.06	0.11	2.0
47	0.5	*68*	**57**	*64*	*319*	*0.3*	*12.0*	74	31	635	4.4	3.1	53.7	0.04	0.11	1.6
48	<0.5	*52*	*46*	39	*224*	*0.2*	*13.0*	74	27	687	3.6	3.5	7.7	0.07	0.11	1.8
49	<0.5	*48*	*37*	44	*218*	*0.3*	*10.0*	62	21	611	3.6	2.7	1.3	0.05	0.14	1.4
50	<0.5	6	7	5	54	<0.1	5.8	18	4	263	1.4	1.1	0.6	<0.01	0.05	0.3
51	<0.5	*48*	**62**	19	*224*	*0.2*	4.5	79	23	621	5.1	2.3	28.6	0.06	0.18	2.7
52	<0.5	*46*	*43*	26	*233*	*0.2*	7.4	*86*	34	422	4.6	2.9	63.4	0.08	0.16	2.5
53	<0.5	*58*	**86**	19	*246*	*0.2*	4.9	71	29	475	3.6	2.1	96.8	0.06	0.17	2.6
54	<0.5	*76*	*37*	21	*234*	*0.2*	6.1	*98*	33	446	6.2	2.8	86.7	0.07	0.13	3.1
55	<0.5	16	*18*	9	*186*	*0.2*	7.9	29	6	304	2.4	0.7	17.1	0.03	0.05	1.0
56	<0.5	22	*13*	13	111	*0.5*	*12.0*	42	13	659	3.4	1.8	60.5	0.06	0.12	2.7
57	<0.5	*51*	**62**	20	105	*0.2*	7.5	42	16	360	2.4	1.6	11.5	0.02	0.08	2.1
58	<0.5	14	9	10	31	*0.4*	5.4	25	8	441	1.6	1.2	18.9	0.02	0.08	2.0
59	<0.5	32	*21*	40	89	*0.5*	7.9	65	21	425	2.4	2.3	5.0	0.05	0.10	2.5
60	<0.5	*58*	*40*	29	*195*	*0.4*	*9.4*	58	27	315	4.8	2.5	67.2	0.06	0.11	2.7
61	<0.5	*40*	*41*	31	*261*	*0.4*	*9.9*	*86*	39	336	4.6	3.6	44.2	0.06	0.13	2.6
62	<0.5	5	6	6	56	<0.1	3.9	13	4	254	1.2	1.3	2.1	<0.01	<0.05	0.3
63	<0.5	*41*	*40*	31	*166*	*0.2*	*10.0*	*96*	36	379	5.6	3.1	85.0	0.06	0.12	1.8
64	<0.5	5	7	5	39	<0.1	5.1	12	5	520	1.4	1.2	3.0	<0.01	<0.05	0.3
65	<0.5	*50*	*40*	40	*183*	0.1	4.0	*84*	20	623	3.6	2.3	12.1	0.10	0.24	3.6
66	<0.5	*128*	*48*	72	*346*	*0.2*	*11.0*	*115*	39	435	6.2	3.8	21.3	0.10	0.20	2.3
67	<0.5	*65*	**61**	18	*234*	*0.2*	*8.9*	*106*	44	350	7.0	4.9	77.2	0.08	0.18	1.7
68	<0.5	6	6	5	72	<0.1	3.7	14	3	432	1.0	1.1	12.4	<0.01	0.05	0.1
69	<0.5	7	8	4	63	<0.1	3.4	18	4	512	1.2	1.3	2.3	<0.01	<0.05	0.1
70	<0.5	8	9	5	54	<0.1	4.1	17	4	593	1.3	1.3	3.6	<0.01	<0.05	0.3
71	<0.5	9	11	5	85	<0.1	3.1	26	4	791	1.1	1.0	1.5	0.01	0.05	0.1
72	<0.5	*36*	**124**	11	*226*	<0.1	8.0	62	9	214	2.2	2.1	0.6	0.02	<0.05	0.4
73	<0.5	11	*22*	8	51	<0.1	7.8	22	19	323	0.9	0.6	13.4	<0.01	<0.05	0.3
74	<0.5	15	**83**	17	57	<0.1	5.1	*117*	12	253	2.0	1.5	3.2	0.02	0.16	1.1
75	<0.5	*58*	*48*	20	*164*	<0.1	8.0	*97*	48	524	3.1	1.9	47.2	0.03	0.18	1.2
76	<0.5	10	*23*	7	52	<0.1	2.6	21	5	78	1.0	0.7	6.2	<0.01	<0.05	0.3
77	<0.5	19	**53**	15	60	<0.1	4.3	71	8	144	1.4	1.3	5.2	<0.01	0.06	0.6
78	<0.5	10	*48*	8	51	0.1	5.8	*104*	12	156	1.7	1.4	6.2	0.02	<0.05	0.6
79	<0.5	14	**82**	18	49	<0.1	4.8	*114*	16	241	2.4	1.3	3.0	0.02	0.06	0.7
80	<0.5	19	**78**	14	56	<0.1	5.9	*82*	18	234	2.2	1.6	5.2	0.01	0.06	0.5
81	<0.5	13	*47*	9	66	0.1	3.8	78	20	221	1.2	1.0	0.7	0.01	<0.05	0.5
82	<0.5	17	*43*	11	54	0.1	4.6	69	13	207	1.6	1.2	2.2	0.02	<0.05	0.7

(continued)

(continued) **Appendix Table 1.**

Site	Cd	Cu	Ni	Pb	Zn	Hg	As	Cr	Li	Mn	Al	Fe	Fraction <63 µm	Total P	Total N	TOC
83	<0.5	*64*	**68**	27	*284*	*0.2*	7.0	*145*	35	289	5.2	4.0	37.9	0.09	0.27	2.7
84	<0.5	*61*	**102**	27	*207*	*0.2*	*8.5*	*245*	45	329	6.1	4.1	81.6	0.07	0.24	2.1
85	<0.5	*46*	**68**	43	*264*	*0.2*	*8.6*	*146*	32	416	4.6	4.1	22.3	0.07	0.16	3.0
86	<0.5	*63*	**232**	31	**487**	*0.2*	*8.2*	**422**	38	279	5.0	3.9	66.1	0.10	0.17	2.3
87	<0.5	21	**210**	21	141	<0.1	*11.0*	*143*	13	462	2.6	3.9	0.8	<0.01	0.05	0.1
88	<0.5	*46*	**63**	25	138	0.1	4.9	*96*	40	520	3.8	2.1	54.5	0.05	0.23	1.8
89	<0.5	*39*	**62**	12	129	*0.2*	6.5	*94*	32	494	4.3	2.6	64.4	0.06	0.18	1.0
90	<0.5	17	**472**	18	114	<0.1	*19.0*	*271*	13	512	2.7	5.7	2.1	0.01	<0.05	0.2
91	<0.5	20	**146**	12	72	<0.1	*18.0*	*284*	11	587	2.9	7.8	0.2	<0.01	<0.05	0.2
92	<0.5	15	**136**	19	81	<0.1	*17.0*	*210*	12	683	3.4	3.6	0.1	<0.01	<0.05	0.2
93	<0.5	21	**112**	17	110	<0.1	*14.0*	*124*	13	695	3.2	3.9	<0.1	<0.01	<0.05	0.3
94	<0.5	*44*	*41*	*58*	121	*0.2*	*25.0*	*83*	30	440	4.3	4.0	58.4	0.03	0.09	0.4
95	<0.5	*51*	**94**	26	*256*	<0.1	*21.0*	32	14	456	4.0	4.1	0.3	0.02	<0.05	0.1
96	<0.5	15	19	17	48	<0.1	*11.0*	36	17	314	3.1	3.4	3.2	<0.01	<0.05	0.2
97	<0.5	16	20	21	97	<0.1	*10.0*	30	10	323	1.6	2.0	8.1	<0.01	<0.05	0.2
98	<0.5	19	*26*	15	97	<0.1	8.0	41	18	352	2.7	3.1	2.4	0.02	<0.05	0.3
99	<0.5	20	*28*	26	*161*	<0.1	*12.0*	29	20	323	2.5	2.6	3.2	0.03	<0.05	0.2
100	<0.5	21	*30*	23	107	<0.1	*16.0*	34	19	586	3.6	6.6	2.2	0.02	<0.05	0.2
101	<0.5	26	*25*	21	*152*	0.1	*22.0*	30	27	427	4.7	4.7	7.8	0.06	0.12	0.4
102	<0.5	22	*29*	20	110	<0.1	*19.0*	33	23	713	3.8	5.1	0.2	<0.01	<0.05	0.2
103	<0.5	16	*21*	17	86	<0.1	*18.0*	31	19	466	4.6	2.2	6.4	<0.01	<0.05	0.1
104	<0.5	15	*28*	36	114	<0.1	*30.0*	39	20	702	3.2	3.1	1.4	<0.01	<0.05	0.2
105	<0.5	22	*30*	*58*	131	*0.2*	*25.0*	48	28	513	3.8	3.2	44.2	0.05	0.06	0.4
106	<0.5	23	*43*	41	*202*	<0.1	*30.0*	42	17	694	3.0	4.8	<0.1	0.01	<0.05	0.1
107	<0.5	19	*31*	*61*	123	<0.1	*33.0*	41	10	816	2.9	5.8	0.1	<0.01	<0.05	0.1
108	<0.5	18	*25*	**273**	**1,250**	0.1	*18.0*	*97*	9	659	2.2	6.7	<0.1	0.02	<0.05	0.2
109	<0.5	16	18	26	134	<0.1	*12.0*	41	14	392	3.7	2.2	0.1	<0.01	<0.05	0.1
110	<0.5	18	*22*	*48*	*162*	<0.1	*27.0*	76	13	754	2.9	5.6	<0.1	<0.01	<0.05	0.1
111	<0.5	21	*27*	*83*	121	<0.1	*25.0*	57	11	614	2.1	5.2	<0.1	<0.01	<0.05	0.2
112	<0.5	20	*26*	*68*	134	<0.1	*31.0*	49	11	422	1.9	4.8	0.1	0.01	<0.05	0.2

Interpretation of analytical values: below ERL: regular, between ERL and ERM: italics and above ERM: bold (only for Cd, Cu, Ni, Pb, Zn, Hg, As, and Cr).