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

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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).