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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	Frac- tion <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	<i>64</i>	68	27	<i>284</i>	<i>0.2</i>	7.0	<i>145</i>	35	289	5.2	4.0	37.9	0.09	0.27	2.7
84	<0.5	<i>61</i>	102	27	<i>207</i>	<i>0.2</i>	8.5	<i>245</i>	45	329	6.1	4.1	81.6	0.07	0.24	2.1
85	<0.5	<i>46</i>	68	43	<i>264</i>	<i>0.2</i>	8.6	<i>146</i>	32	416	4.6	4.1	22.3	0.07	0.16	3.0
86	<0.5	<i>63</i>	232	31	487	<i>0.2</i>	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	<i>11.0</i>	<i>143</i>	13	462	2.6	3.9	0.8	<0.01	0.05	0.1
88	<0.5	<i>46</i>	63	25	138	0.1	4.9	<i>96</i>	40	520	3.8	2.1	54.5	0.05	0.23	1.8
89	<0.5	<i>39</i>	62	12	129	<i>0.2</i>	6.5	<i>94</i>	32	494	4.3	2.6	64.4	0.06	0.18	1.0
90	<0.5	17	472	18	114	<0.1	<i>19.0</i>	<i>271</i>	13	512	2.7	5.7	2.1	0.01	<0.05	0.2
91	<0.5	20	146	12	72	<0.1	<i>18.0</i>	<i>284</i>	11	587	2.9	7.8	0.2	<0.01	<0.05	0.2
92	<0.5	15	136	19	81	<0.1	<i>17.0</i>	<i>210</i>	12	683	3.4	3.6	0.1	<0.01	<0.05	0.2
93	<0.5	21	112	17	110	<0.1	<i>14.0</i>	<i>124</i>	13	695	3.2	3.9	<0.1	<0.01	<0.05	0.3
94	<0.5	<i>44</i>	<i>41</i>	58	121	<i>0.2</i>	<i>25.0</i>	83	30	440	4.3	4.0	58.4	0.03	0.09	0.4
95	<0.5	<i>51</i>	94	26	<i>256</i>	<0.1	<i>21.0</i>	32	14	456	4.0	4.1	0.3	0.02	<0.05	0.1
96	<0.5	15	19	17	48	<0.1	<i>11.0</i>	36	17	314	3.1	3.4	3.2	<0.01	<0.05	0.2
97	<0.5	16	20	21	97	<0.1	<i>10.0</i>	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	<i>161</i>	<0.1	<i>12.0</i>	29	20	323	2.5	2.6	3.2	0.03	<0.05	0.2
100	<0.5	21	30	23	107	<0.1	<i>16.0</i>	34	19	586	3.6	6.6	2.2	0.02	<0.05	0.2
101	<0.5	26	25	21	<i>152</i>	0.1	<i>22.0</i>	30	27	427	4.7	4.7	7.8	0.06	0.12	0.4
102	<0.5	22	29	20	110	<0.1	<i>19.0</i>	33	23	713	3.8	5.1	0.2	<0.01	<0.05	0.2
103	<0.5	16	21	17	86	<0.1	<i>18.0</i>	31	19	466	4.6	2.2	6.4	<0.01	<0.05	0.1
104	<0.5	15	28	36	114	<0.1	<i>30.0</i>	39	20	702	3.2	3.1	1.4	<0.01	<0.05	0.2
105	<0.5	22	30	58	131	<i>0.2</i>	<i>25.0</i>	48	28	513	3.8	3.2	44.2	0.05	0.06	0.4
106	<0.5	23	43	41	202	<0.1	<i>30.0</i>	42	17	694	3.0	4.8	<0.1	0.01	<0.05	0.1
107	<0.5	19	31	61	123	<0.1	<i>33.0</i>	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	<i>18.0</i>	97	9	659	2.2	6.7	<0.1	0.02	<0.05	0.2
109	<0.5	16	18	26	134	<0.1	<i>12.0</i>	41	14	392	3.7	2.2	0.1	<0.01	<0.05	0.1
110	<0.5	18	22	48	<i>162</i>	<0.1	<i>27.0</i>	76	13	754	2.9	5.6	<0.1	<0.01	<0.05	0.1
111	<0.5	21	27	83	121	<0.1	<i>25.0</i>	57	11	614	2.1	5.2	<0.1	<0.01	<0.05	0.2
112	<0.5	20	26	68	134	<0.1	<i>31.0</i>	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).