Electronic Supplementary Material (ESI) for Environmental Science: Processes & Impacts.

Supporting Information

Table S 1. The recovery of elements in the certified reference materials (CRM). Arithmetic mean and standard deviation (SD) are based on four digests and three repeat analyses of each digest, in total n=12. na = not available in the reference material.

	MODAS-2, bottom sediment				BCR 176-R, Fly ash			
	Mean, mg.kg^{-1}	**SD,** mg.kg^{-1}	**Reference value** mg.kg^{-1}	**Recovery %**	**Mean,** mg.kg^{-1}	**SD,** mg.kg^{-1}	**Reference value** mg.kg^{-1}	**Recovery %**
Li7	22.5	1.84	27.3	82	-	-	na	-
Be9	0.936	0.084	1.23	76	-	-	na	-
Na23	412	31.9	4273	10	14317	13448	34800	41
Mg24	5117	190	5700	90	-	-	na	-
Al27	25221	710	37700	67	-	-	na	-
S32	2636	238	2606	101	-	-	na	-
K39	6993	264	11100	63	-	-	na	-
Ca44	61571	1827	64100	96	-	-	na	-
Sc45	5.31	0.187	7.10	75	2.267	0.117	2.910	78
Ti47	295	10.3	330.00	89	-	-	na	-
V51	79.2	3.00	80.00	99	29.1	0.29	35	83
Cr52	73.8	4.61	68.30	108	464	9.2	810	57
Mn55	956	32.4	1020	94	644	31	730	88
Fe56	26676	714	26000	103	11893	258	13100	91
Co59	7.49	0.340	7.91	95	25.1	0.41	26.7	94
Ni60	37.3	5.96	35.4	105	110	0.7	117	94
Cu63	39.2	0.267	32.9	119	873	12.9	1050	83
Zn66	274	10.4	276	99	15877	156	16800	95
Ga69	7.34	0.346	9.00	82	-	-	na	-
As75	7.66	0.336	7.07	108	52.3	2.39	54	97
Se77	2.24	0.333	1.57	143	16.9	1.55	18.3	92
Rb85	50.5	1.39	71.7	70	96	5.2	102	94
Sr88	187	7.98	197	95	-	-	na	-
Y89	16.6	0.055	20.90	80	-	-	na	-
Zr90	69.9	8.41	434	16	-	-	na	-
Nb93	0.087	0.042	11.2	1	-	-	na	-
Mo95	0.756	0.064	1.01	75	-	-	na	-
Ag107	1.08	0.350	1.14	95	33.1	2.03	33.100	100
Cd111	2.18	0.181	2.17	100	227	22.6	226	100
Sn118	2.90	0.891	3.17	92	-	-	na	-
Sb121	0.105	0.082	0.96	11	37.0	1.13	850	4
Te125	0.173	0.061	0.02	866	-	-	na	-
Cs133	4.00	0.278	4.24	94	8.21	0.637	8.270	99
Ba137	234	26.0	266	88	4691	157	4650	101
La139	29.9	2.82	28.6	105	29.0	1.23	30.200	96
Ce140	63.7	3.54	63.4	100	47.8	3.45	47.700	100
Pr141	7.08	0.389	7.00	101	-	-	na	-

	MODAS-2, bottom sediment				BCR 176-R, Fly ash			
	Mean, mg.kg^{-1}	**SD,** mg.kg^{-1}	**Reference value** mg.kg^{-1}	**Recovery %**	**Mean,** mg.kg^{-1}	**SD,** mg.kg^{-1}	**Reference value** mg.kg^{-1}	**Recovery %**
Nd146	27.7	1.40	27.1	102	-	-	na	-
Sm147	5.07	0.257	5.23	97	-	-	na	-
Eu153	0.924	0.095	0.86	107	6.88	1.11	0.868	793
Gd157	5.08	0.895	5.06	100	-	-	na	-
Tb159	0.959	0.043	0.69	138	-	-	na	-
Dy163	3.58	0.871	3.66	98	-	-	na	-
Ho165	0.630	0.023	0.71	89	-	-	na	-
Er166	1.93	0.160	2.06	94	-	-	na	-
Tm169	0.270	0.094	0.29	93	-	-	na	-
Yb172	2.33	0.485	2.37	98	-	-	na	-
Lu175	0.346	0.014	0.34	103	-	-	na	-
Hf178	0.661	0.060	11.6	6	1.41	0.068	4.850	29
Ta181	0.107	0.022	1.01	11	0.094	0.057	2.020	5
W182	0.162	0.054	2.43	7	0.183	0.056	28.300	1
Au197	-	-	na	-	0.559	0.019	0.604	93
Tl205	0.569	0.009	0.62	92	1.28	0.041	1.320	97
Pb208	35.9	2.28	35.9	100	5117	327	5000	102
Bi209	0.358	0.070	0.36	99	-	-	na	-
Th232	10.3	0.538	10.4	99	4.66	0.054	5.280	88
U238	1.90	0.070	2.58	74	-	-	na	-

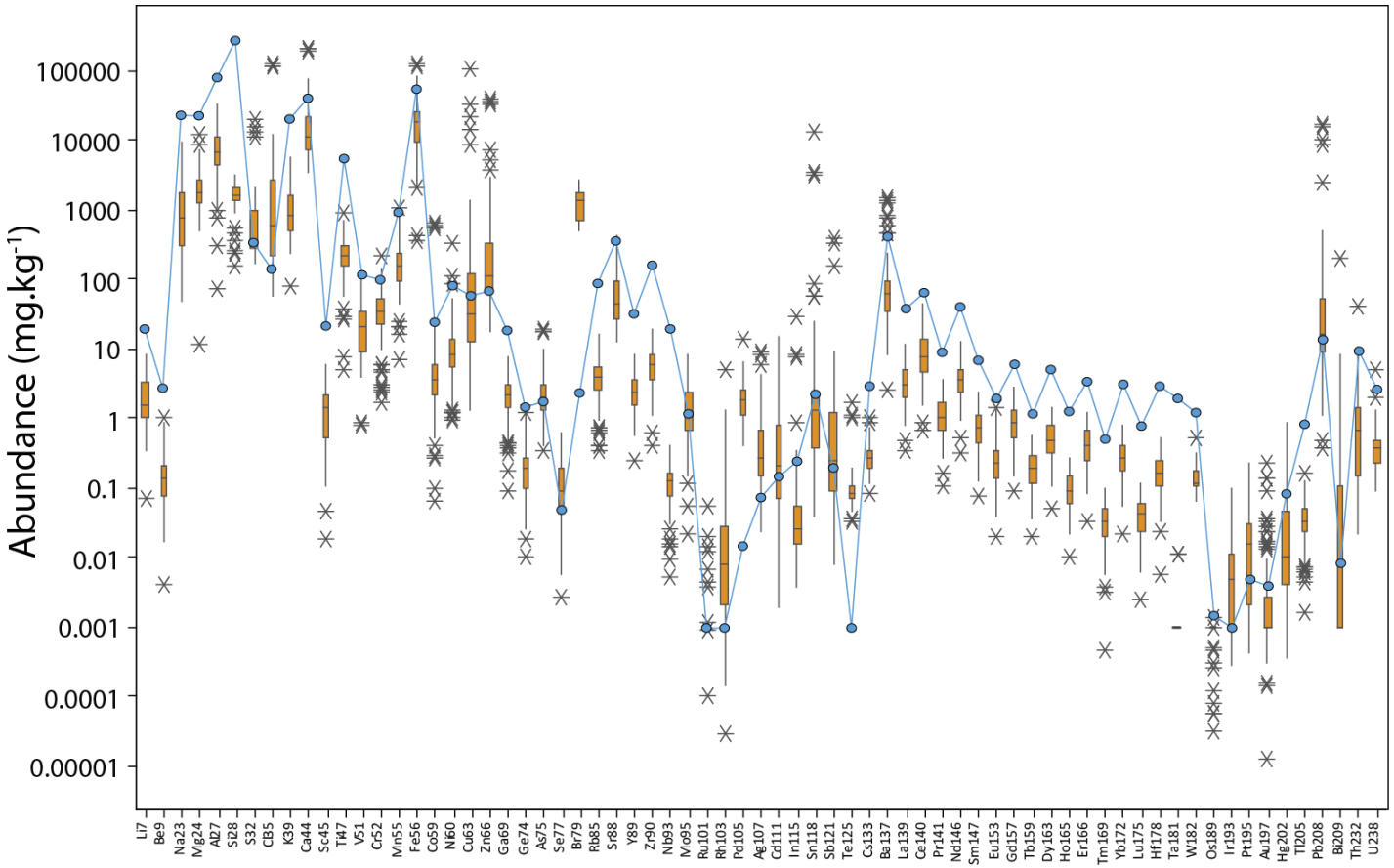

Figure S 1. A box and whisker plot showing the concentration range for each element. The central bar of each box is the median value and the bottom of the box is the first quartile so 25% of the data are below this value. The top of the box is the third quartile and 25% of the data are above this value. The bottom of the lower whisker extends to the minimum value within 1.5 box heights from the bottom of the box. The top of the upper whisker extends to the maximum point within 1.5 box heights from the top of the box. The crosses are outliers as they are beyond the upper and lower whiskers. The crustal abundance for each available element (from 84th Edition CRC Handbook) is shown as a blue spot.

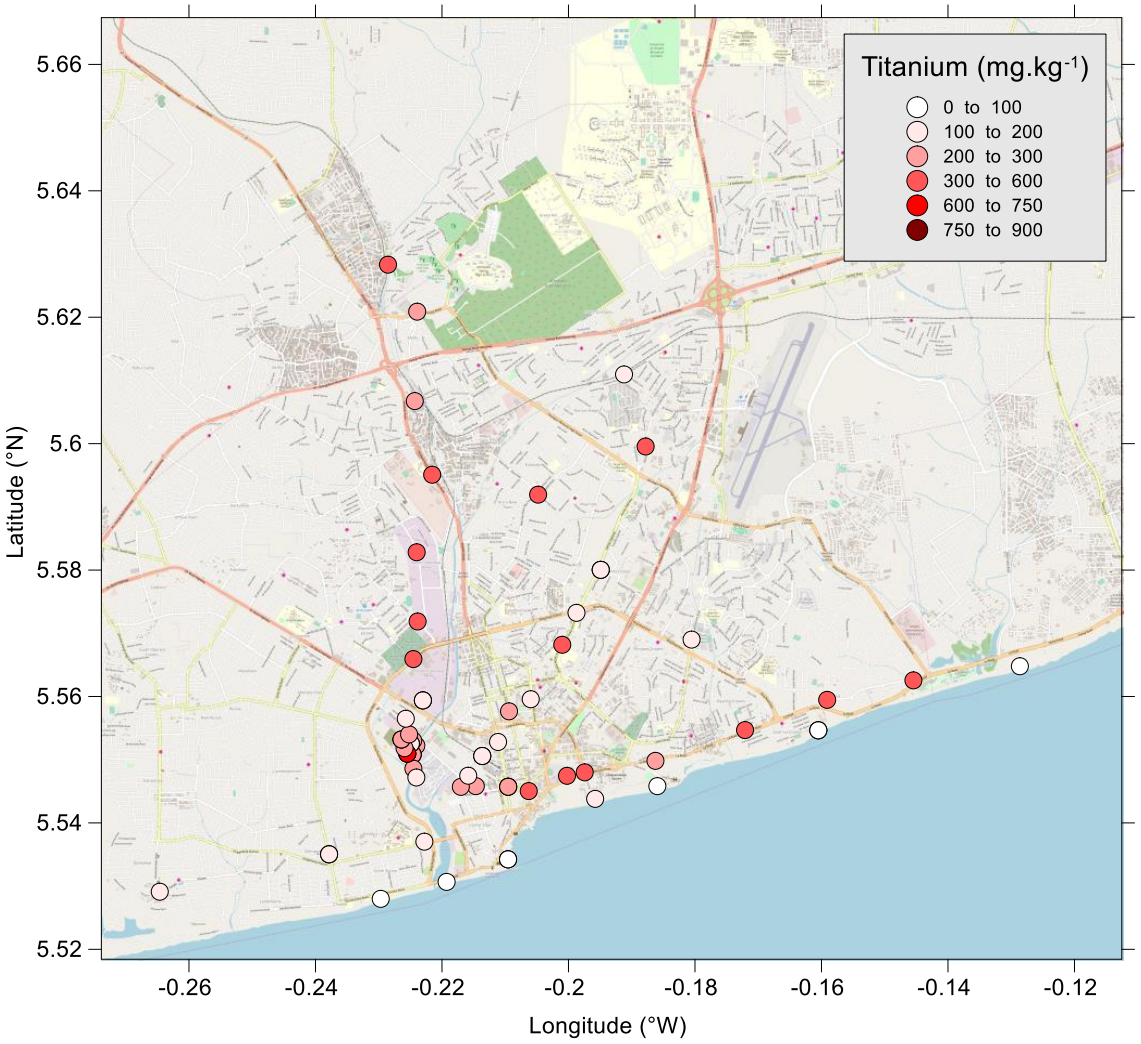

Figure S 2. The geographical distribution of titanium, an element common in the baseline samples, across Accra.

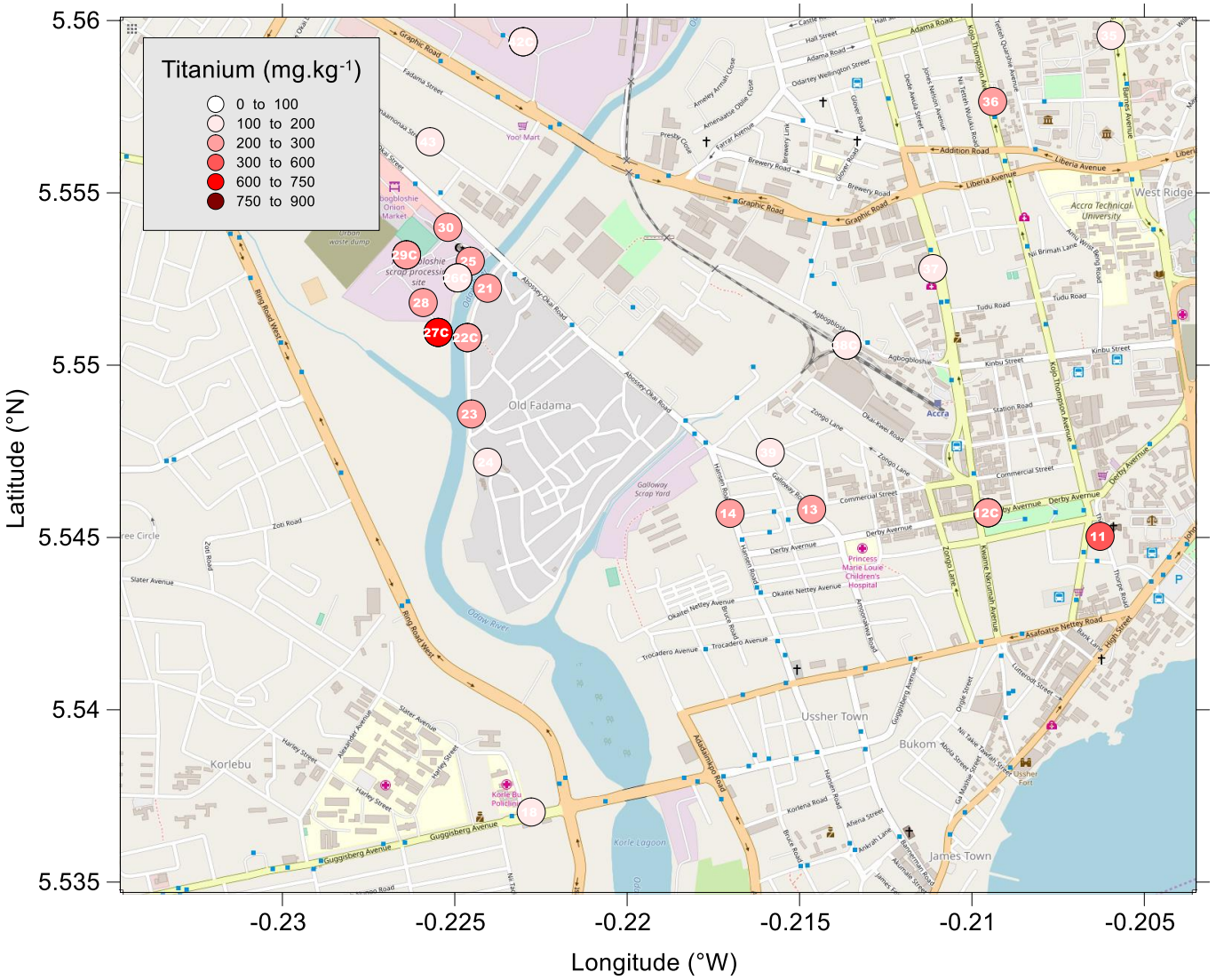

Figure S 3. The geographical distribution of titanium, an element common in the baseline samples, across the burn site at Agbogbloshie and central Accra.

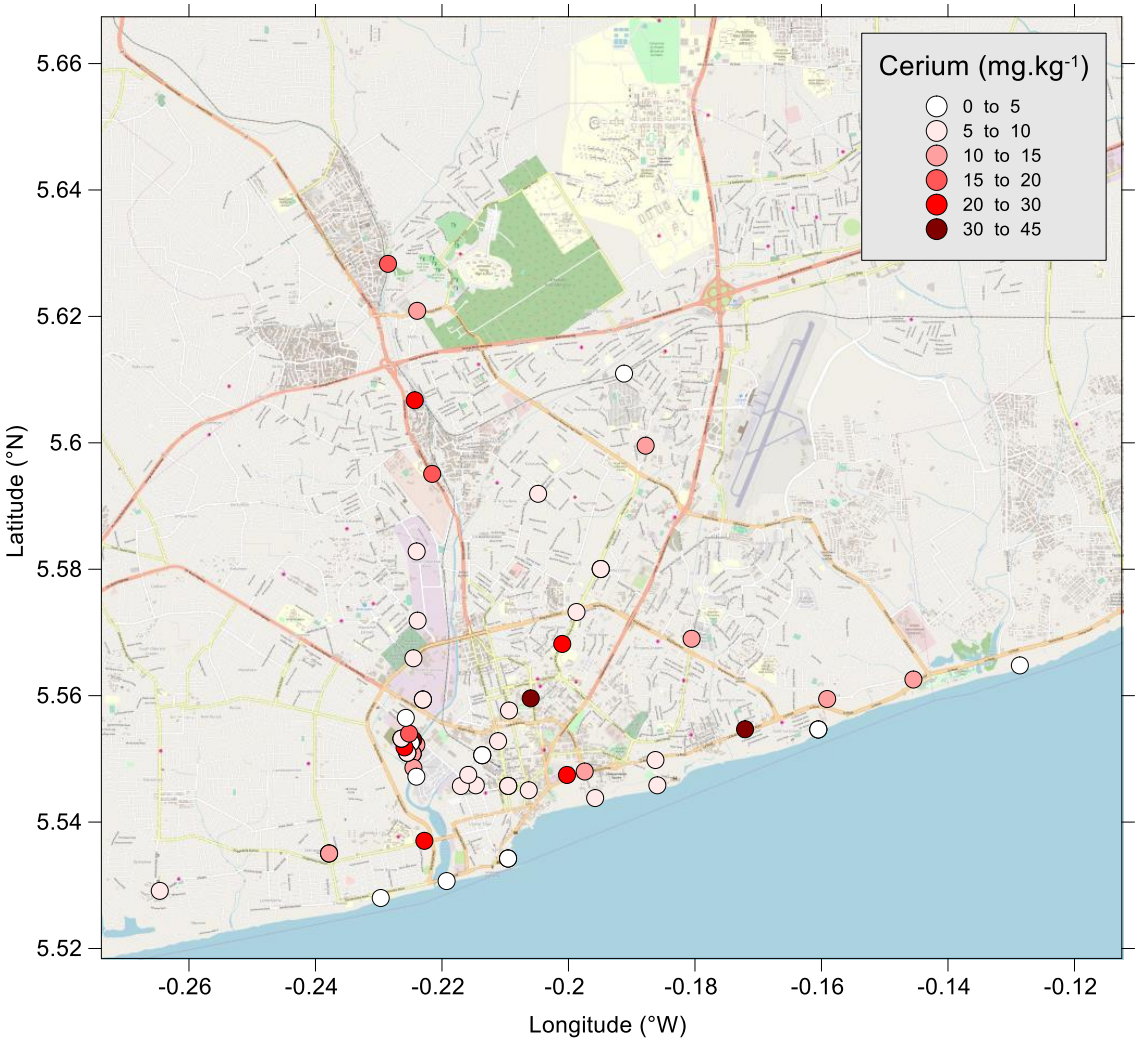

Figure S 4. The geographical distribution of cerium, an element common in the baseline samples, across Accra.

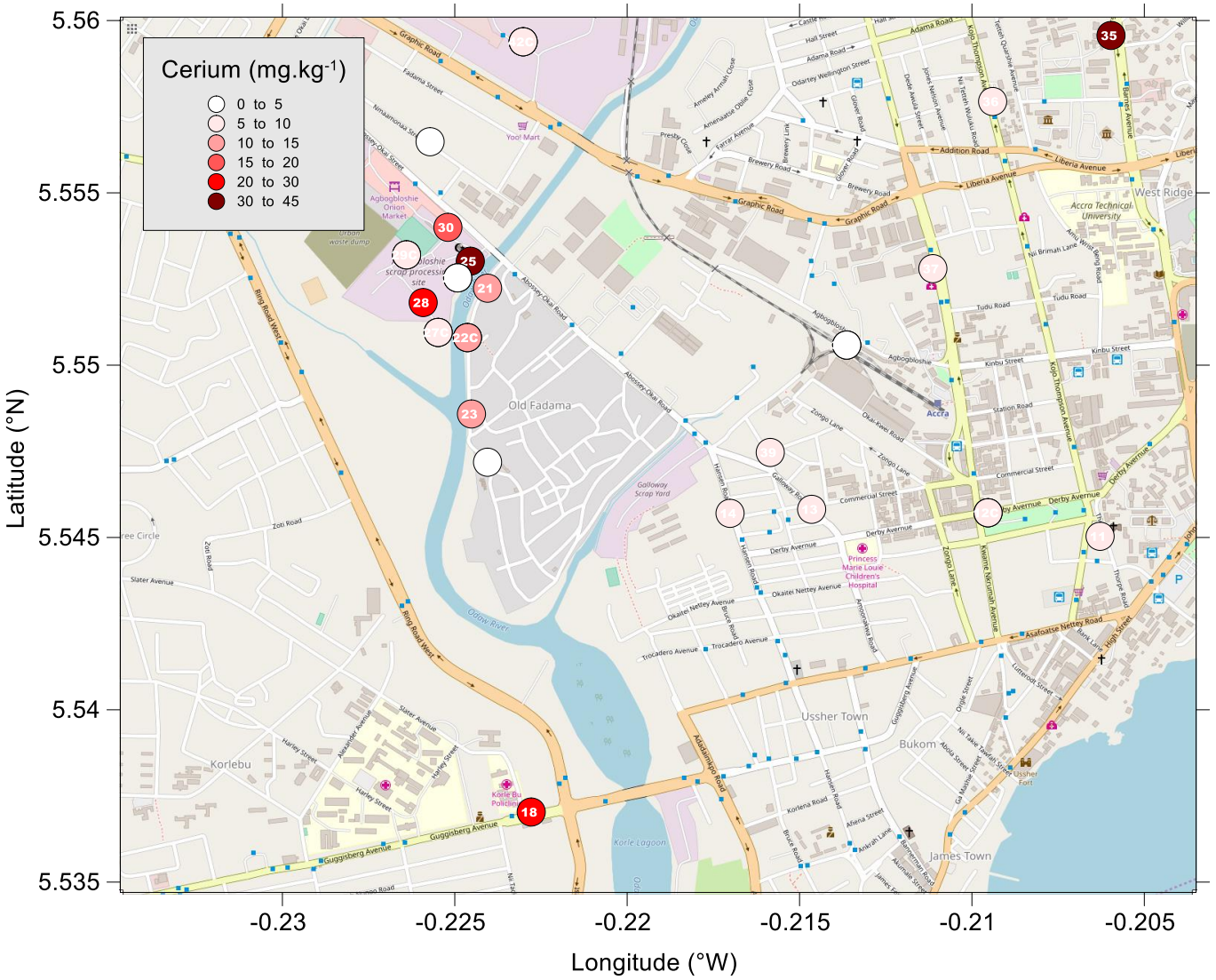

Figure S 5. The geographical distribution of cerium, an element common in the baseline samples, across the burn site at Agbogbloshie and central Accra.

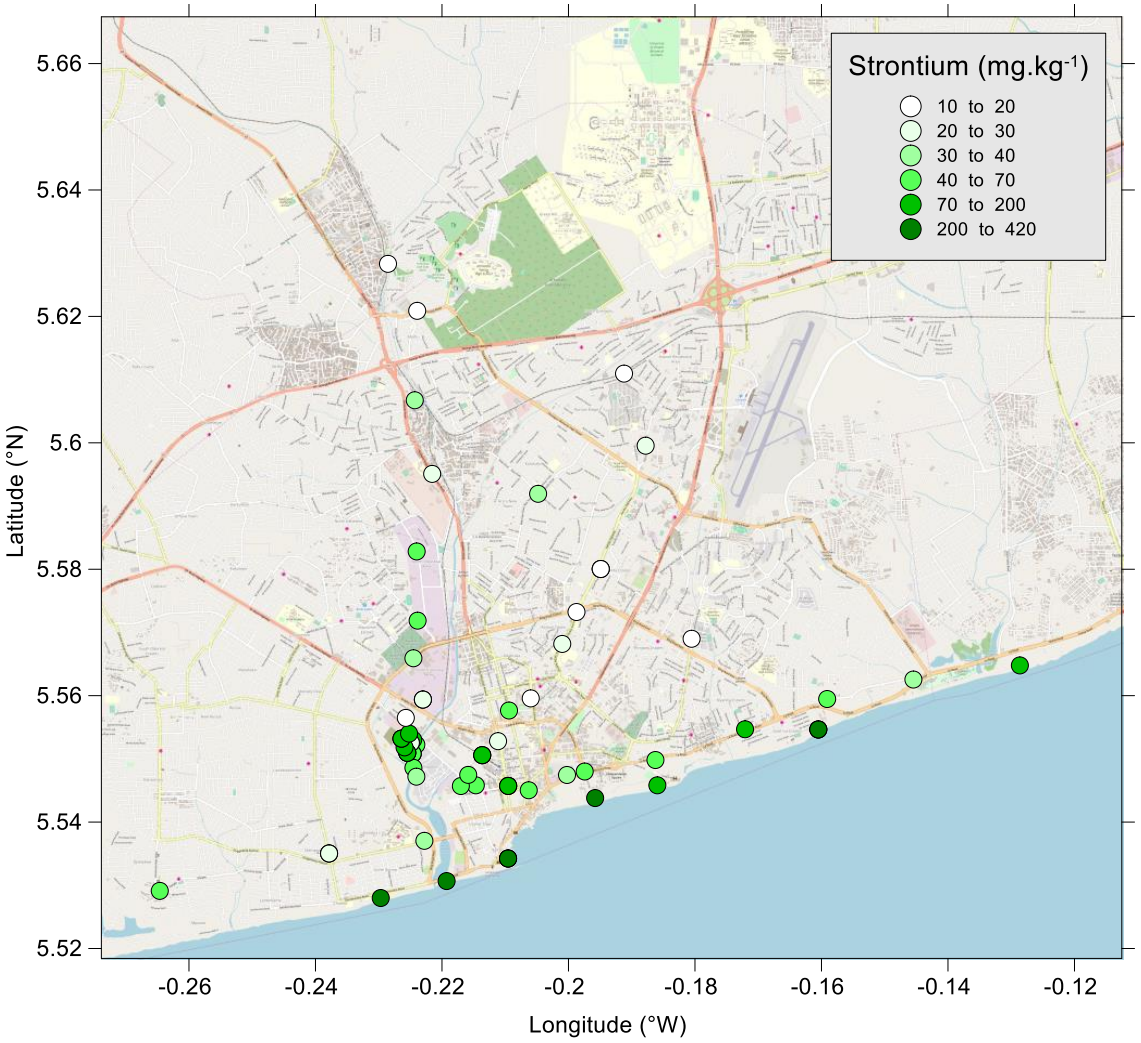

Figure S 6. The geographical distribution of strontium, an element common in the marine samples, across Accra.

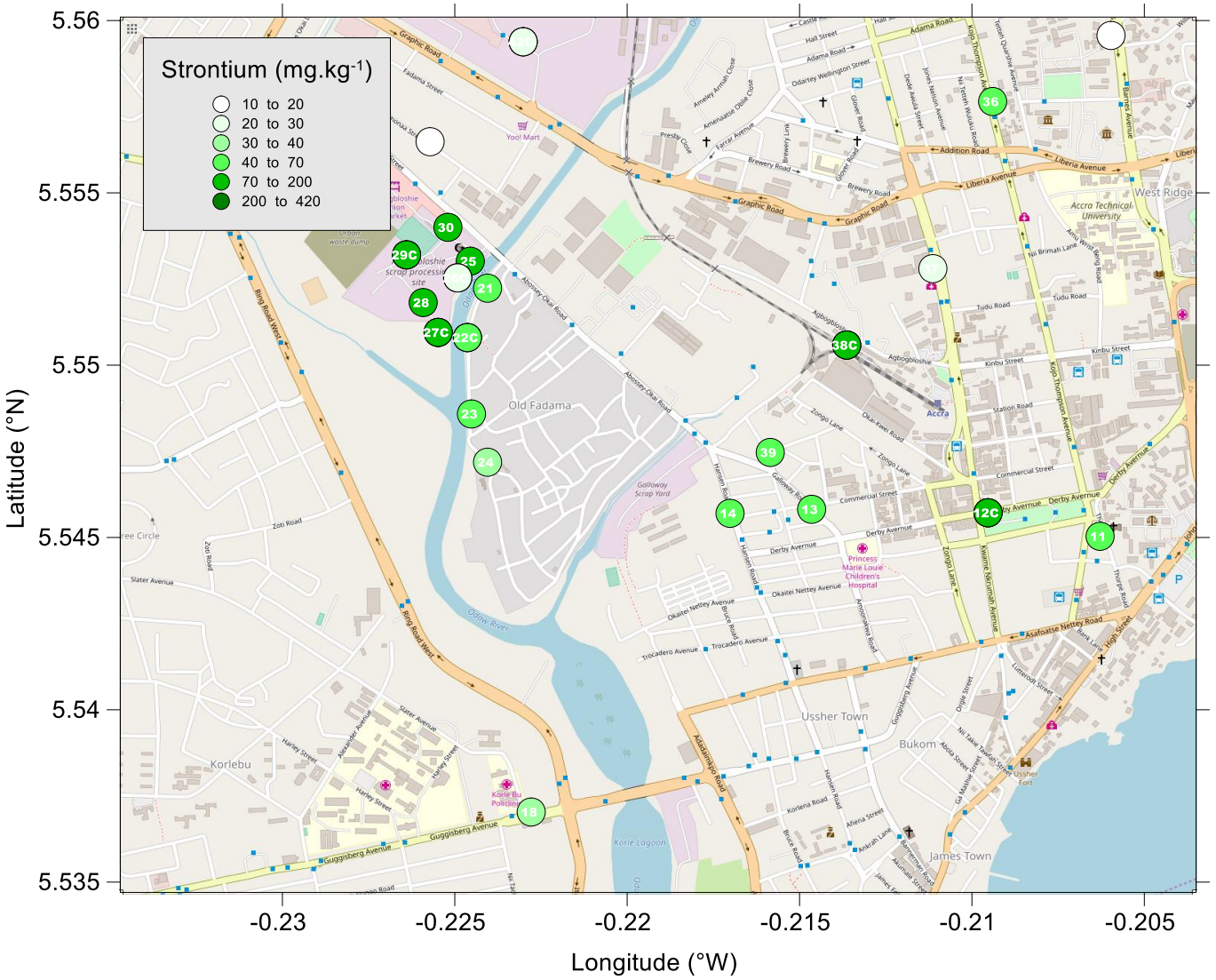

Figure S 7. The geographical distribution of strontium, an element common in the marine samples, across the burn site at Agbogbloshie and central Accra.

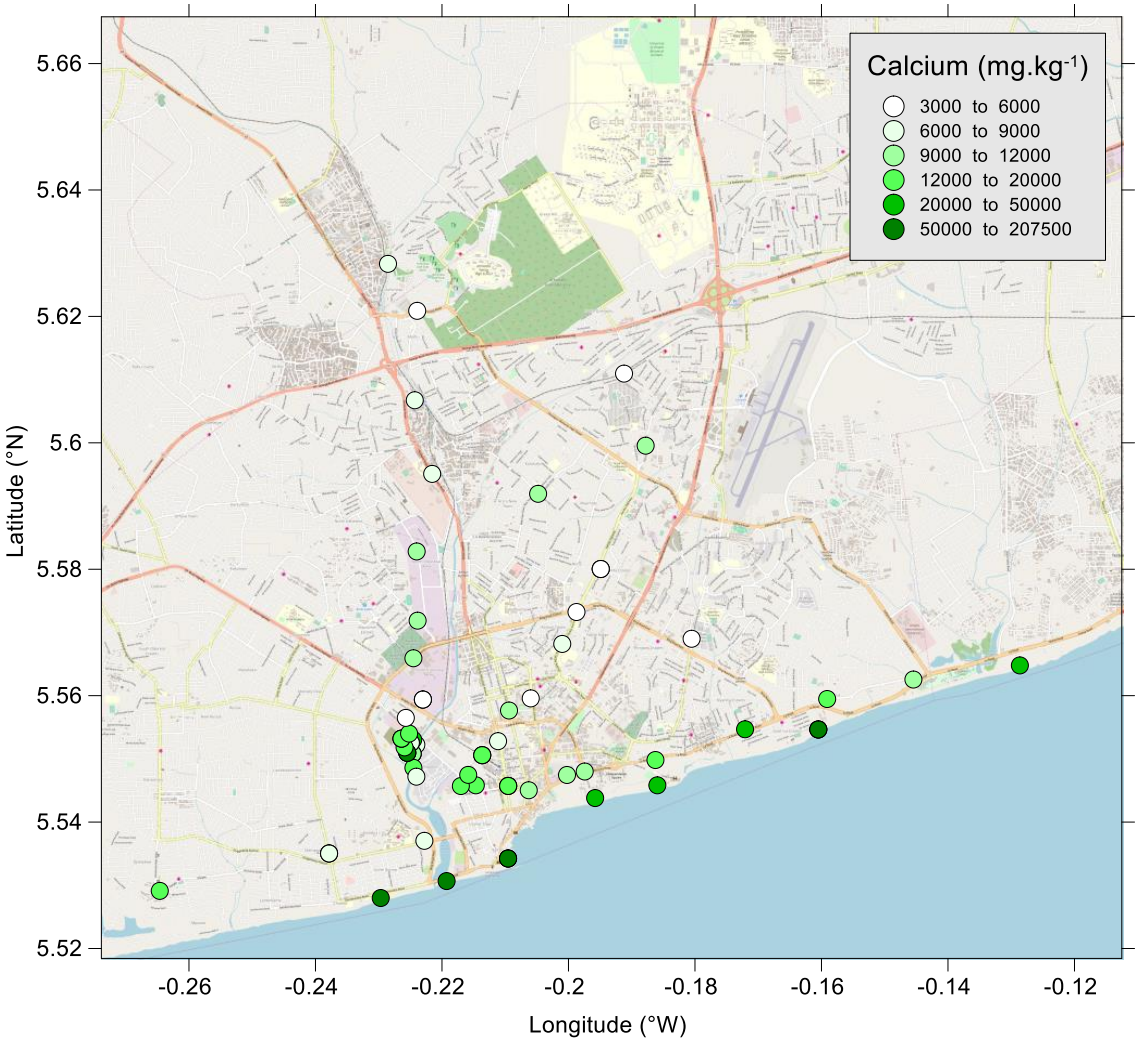

Figure S 8. The geographical distribution of calcium, an element common in the marine samples, across Accra.

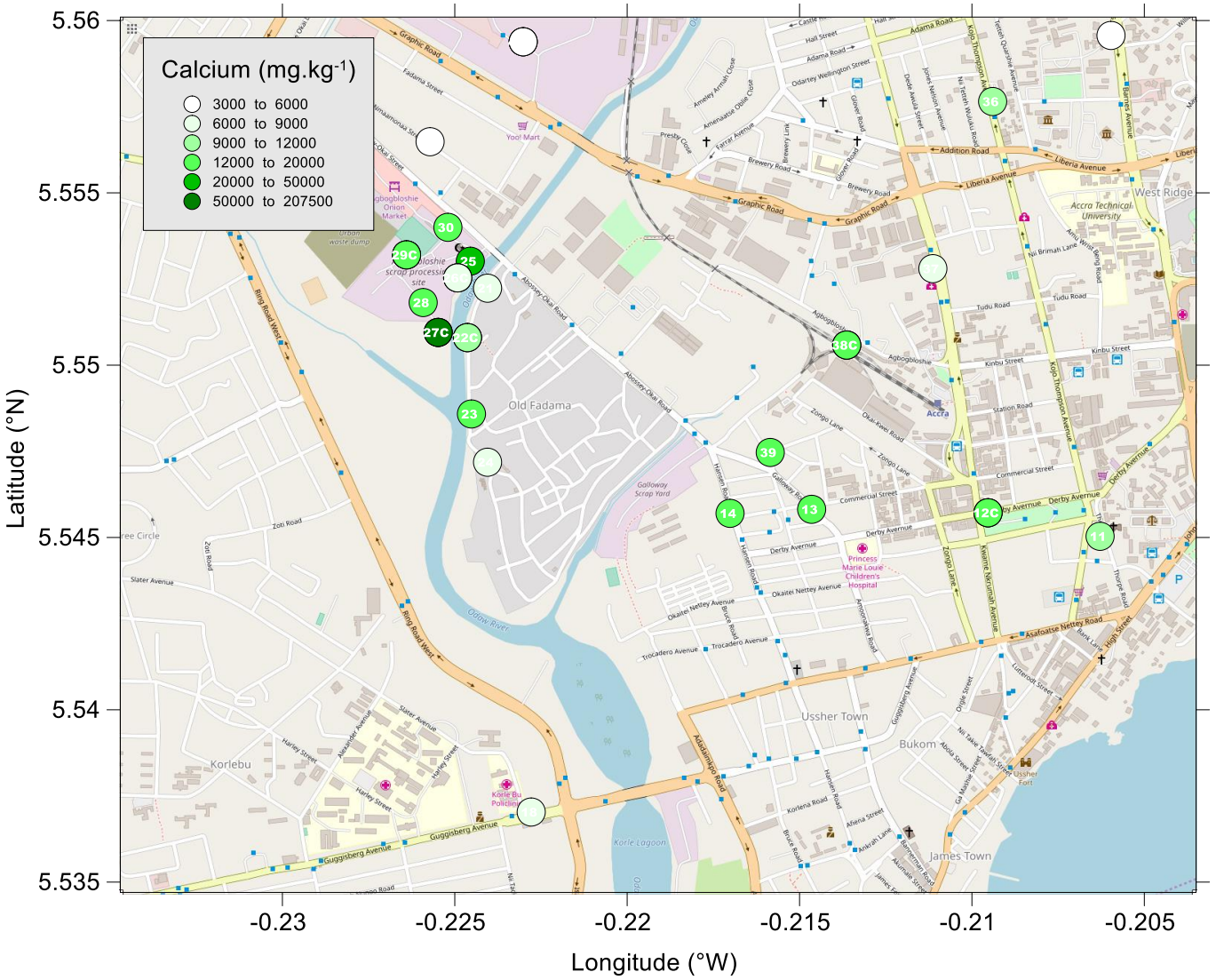

Figure S 9. The geographical distribution of calcium, an element common in the marine samples, across the burn site at Agbogbloshie and central Accra.

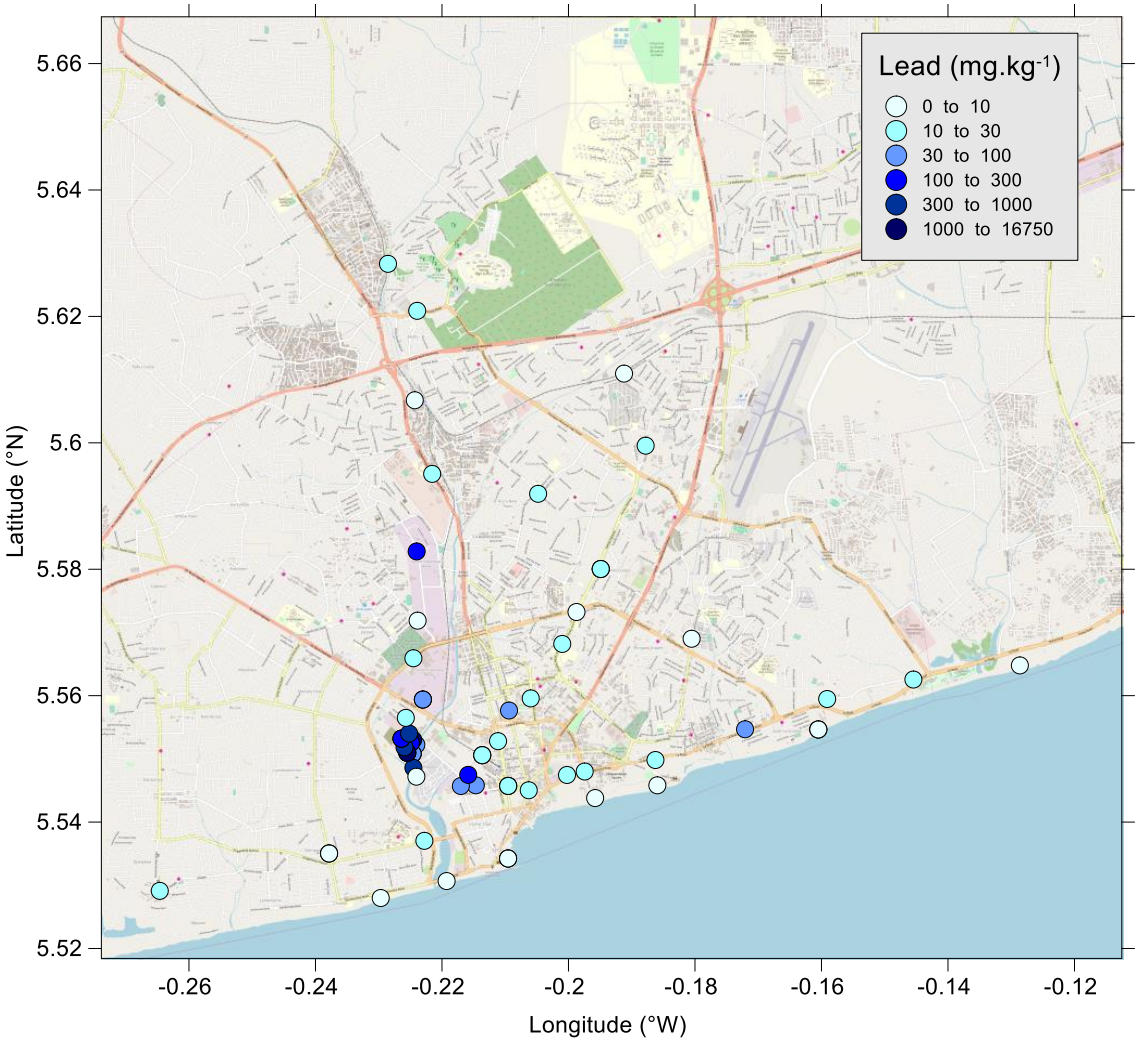

Figure S 10. The geographical distribution of lead, an element common in the burn residues, across Accra.

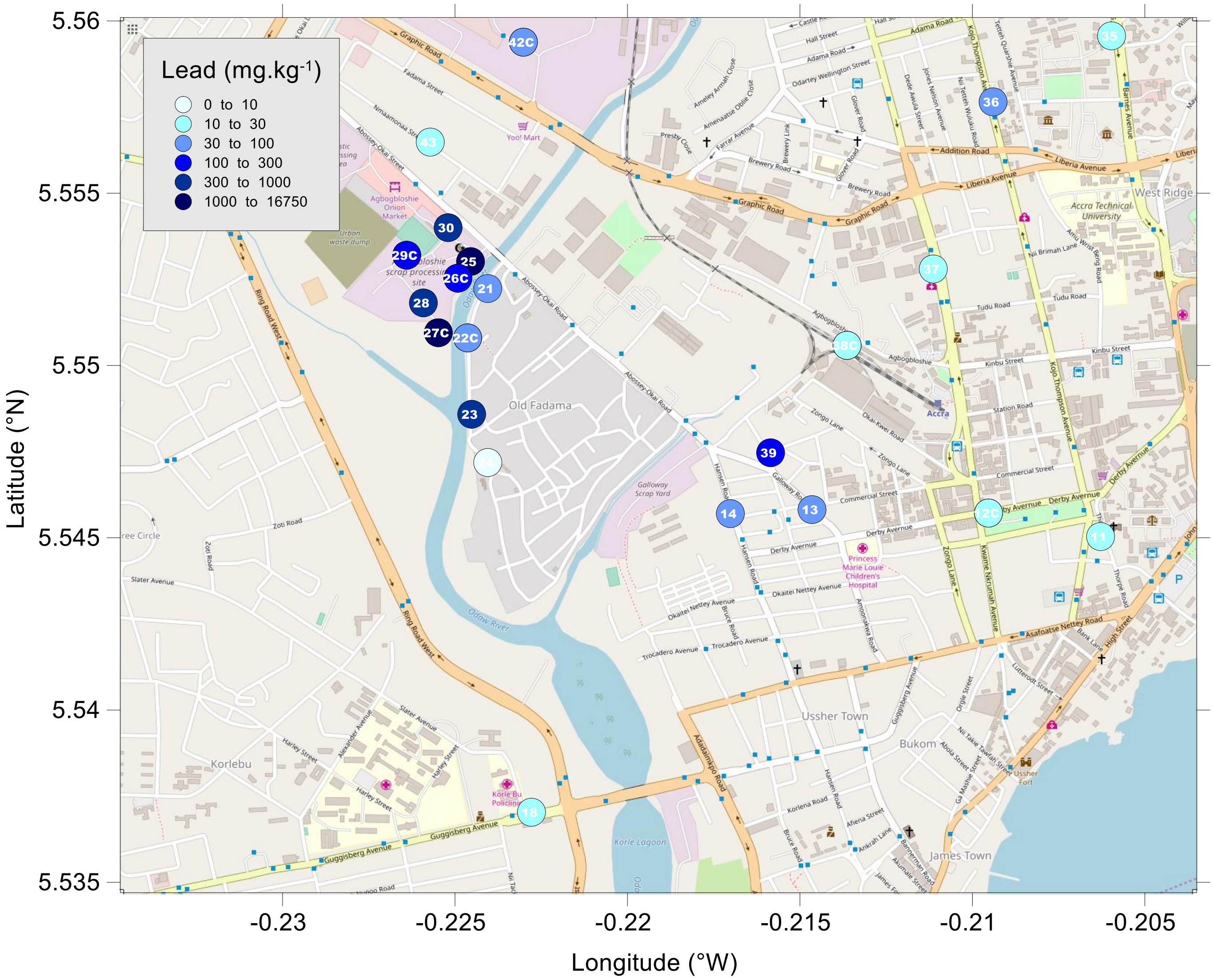

Figure S 11. The geographical distribution of lead, an element common in the burn site residues, across the burn site at Agbogbloshie and central Accra.