APCA factors = 3

Rachel Tao

1/31/2021

Predicted concentration and Percent Error

element	MeanConc	source_1	source_2	source_3	r_squared	PredConc	Pct_error
aluminum	20.906	1.608	22.486	3.215	0.663	27.309	30.63
arsenic	0.657	0.482	0.091	-0.090	0.324	0.483	-26.41
barium	6.227	4.028	1.974	-1.900	0.293	4.102	-34.13
bromine	3.312	2.450	0.362	-0.163	0.456	2.649	-20.03
cadmium	1.510	-0.007	0.010	0.096	0.007	0.099	-93.45
calcium	56.074	34.942	13.973	5.354	0.595	54.269	-3.22
chromium	1.628	0.281	0.204	0.569	0.046	1.055	-35.20
copper	4.483	2.778	0.954	0.436	0.478	4.168	-7.03
iron	111.841	49.899	34.926	6.065	0.739	90.890	-18.73
lead	3.293	3.909	0.437	-0.388	0.615	3.959	20.20
magnesium	7.682	-0.437	2.064	-0.155	0.022	1.471	-80.85
manganese	2.373	2.167	0.559	0.244	0.718	2.970	25.14
nickel	8.590	9.524	-0.639	-1.066	0.602	7.819	-8.98
nitrates	1811.742	1973.344	-75.912	-70.607	0.569	1826.825	0.83
pm25	11855.453	6890.981	2891.158	-1011.648	0.624	8770.492	-26.02
potassium	47.913	19.677	16.881	-0.835	0.135	35.723	-25.44
selenium	0.755	0.909	0.224	-0.244	0.740	0.889	17.68
silicon	72.073	14.462	62.021	-1.375	0.847	75.108	4.21
sulfate	3008.629	1616.491	1218.152	-597.470	0.569	2237.172	-25.64
titanium	3.445	1.343	2.368	-0.252	0.664	3.459	0.42
vanadium	4.449	4.770	1.096	-0.552	0.710	5.313	19.42
zinc	26.876	27.414	-3.081	2.874	0.758	27.207	1.23

Proportion of each element coming from each source

element	source_1	source_2	source_3
aluminum	5.89	82.34	11.77
arsenic	84.07	15.93	0.00
barium	67.11	32.89	0.00
bromine	87.14	12.86	0.00
cadmium	0.00	9.18	90.82
calcium	64.39	25.75	9.87
chromium	26.66	19.37	53.97
copper	66.66	22.89	10.46
iron	54.90	38.43	6.67
lead	89.94	10.06	0.00
magnesium	0.00	100.00	0.00

element	source_1	source_2	source_3
manganese	72.97	18.82	8.22
nickel	100.00	0.00	0.00
nitrates	100.00	0.00	0.00
pm25	70.44	29.56	0.00
potassium	53.82	46.18	0.00
selenium	80.21	19.79	0.00
silicon	18.91	81.09	0.00
sulfate	57.03	42.97	0.00
titanium	36.20	63.80	0.00
vanadium	81.32	18.68	0.00
zinc	90.51	0.00	9.49

Bar graph of proportion of each element coming from each element