

MIX SAMPLE 1 MODELING

CONSENSUS RANKING

tracer score

```
1  As 98.00
2  Sc 97.85
3  Co 97.65
4  Cu 97.50
5  Be 97.40
6  V 94.45
```

CTS Methodology

id	w1	w2	w3	Dw1	Dw2	Dw3	cons	Dmax
1 Au Hg	1.1315657	-0.1193633	-0.01220241	0.10611536	0.1118965	0.08695599	0.0005	0.1118965
2 K Au	1.2131846	-0.2500000	0.03681545	0.11489329	0.1250338	0.07645958	0.0010	0.1250338
3 As Co	0.6625061	0.2443123	0.09318158	0.07377637	0.1337190	0.13577691	0.6905	0.1357769
4 V Sc	0.6210258	0.4716509	-0.09267669	0.09792268	0.1433045	0.14385136	0.2010	0.1438514
5 Hg Cd	1.0715447	-0.1300813	0.05853659	0.15808615	0.1289175	0.12868930	0.0130	0.1580862
6 V Cu	0.7958047	0.2746484	-0.07045307	0.06329394	0.1214148	0.15887910	0.2765	0.1588791

#Explore those pairs (e.g. Au & Hg)

tracer	err	score
8 V	0.002509641	94.45

#Explore those pairs (e.g. K & Au)

tracer	err	score
4 K	0.000000000	88.80
8 V	0.008742674	94.45

#Explore those pairs (e.g. As & Co)

	tracer	err	score
11 As	0		98.00
15 Co	0		97.65
12 Cu	1.942890e-16		97.50

#Explore those pairs (e.g. V & Sc)

tracer	err	score
8 V	0.000000e+00	94.45
15 Co	1.100596e-03	97.65
25 Sc	3.330669e-16	97.85

#Explore those pairs (e.g. Hg & Cd)

tracer	err	score
8 V	0.01515173	94.45

#Explore those pairs (e.g. V & Cu)

```

tracer      err score
8   V 2.220446e-16 94.45
11  As 2.701040e-03 98.00
12  Cu 1.942890e-16 97.50

```

"Source", "As", "Cu", "V", "DAs", "DCu", "DV", "n")

```

id  GOF.mean  GOF.SD  Upper.mean  Upper.SD  Middle.mean  Middle.SD  Lower.mean  Lower.SD
1  4 0.96    0.033   0.800     0.075    0.260      0.096    -0.064    0.11

```

"Source", "Sc", "Co", "V", "DSc", "DCo", "DV", "n")

```

id  GOF.mean  GOF.SD  Upper.mean  Upper.SD  Middle.mean  Middle.SD  Lower.mean  Lower.SD
1  4 0.96    0.030   0.630     0.077    0.470      0.13     -0.093    0.15

```

"Source", "As", "Co", "Cu", "DAs", "DCo", "DCu", "n")

```

id  GOF.mean  GOF.SD  Upper.mean  Upper.SD  Middle.mean  Middle.SD  Lower.mean  Lower.SD
1  4 0.96    0.027   0.700     0.054    0.210      0.13     0.089    0.16

```

"Source", "As", "Co", "DAs", "DCo", "n")

```

id  GOF.mean  GOF.SD  Upper.mean  Upper.SD  Middle.mean  Middle.SD  Lower.mean  Lower.SD
1  4 0.99    0.009   0.660     0.081    0.270      0.16     0.074    0.17

```

MIX SAMPLE 2 MODELING

CONSENSUS RANKING

tracer score

```

1   Cu 99.4
2   Be 98.6
3   Pb 97.7
4   V 96.6
5   K 94.4
6   Al 93.4

```

CTS methodology

```

id  w1    w2    w3    Dw1    Dw2    Dw3 cons  Dmax
1  Au Hg 1.1315657 -0.1193633 -0.01220241 0.10547607 0.1024137 0.08528439 0.000 0.1054761
2  K Au 1.1350874 -0.1250000 -0.01008738 0.09182034 0.1069818 0.05705112 0.009 0.1069818
3  K Cd 1.0687500 -0.1250000 0.05625000 0.11665465 0.1172453 0.09402940 0.022 0.1172453
4  V Be 0.4386248 0.4476235 0.11375167 0.03629542 0.1246265 0.12277892 0.813 0.1246265
5  V Cu 0.5793876 0.2889624 0.13165003 0.06105178 0.1051725 0.12989725 0.822 0.1298973
6  K Pb 0.8049935 -0.1250000 0.32000653 0.12956183 0.1053746 0.14524013 0.088 0.1452401

```

#Explore those pairs (e.g. Au & Hg)

```

tracer      err score
4   K 0.00145464 94.4

```

#Explore those pairs (e.g. K & Au)

```

tracer      err score
4   K 1.665335e-16 94.4

```

#Explore those pairs (e.g. K & Cd)

```

tracer      err score
4   K 2.220446e-16 94.4

```

8 V 2.220026e-02 96.6

#Explore those pairs (e.g. V & Be)

	tracer	err	score
1	Al	2.374019e-02	93.4
6	Fe	1.006018e-02	81.3
8	V	3.330669e-16	96.6
28	Be	4.996004e-16	98.6

#Explore those pairs (e.g. V & Cu)

	tracer	err	score
8	V	1.665335e-16	96.6
12	Cu	1.110223e-16	99.4
13	Pb	1.441867e-02	97.7

#Explore those pairs (e.g. K & Pb)

	tracer	err	score
4	K	5.551115e-17	94.4
6	Fe	6.720180e-03	81.3
13	Pb	3.330669e-16	97.7

```
data1 <- select(data,"ID","Source","K","V","DK","DV","n")
```

id	GOF.mean	GOF.SD	Upper.mean	Upper.SD	Middle.mean	Middle.SD	Lower.mean	Lower.SD
1	4	0.99454308	0.01691122	0.9573133	0.2167945	-0.12444558	0.09928421	0.1671323

```
data1 <- select(data,"ID","Source","Be","V","Al","Fe","DBe","DV","DAI","DFe","n")
```

id	GOF.mean	GOF.SD	Upper.mean	Upper.SD	Middle.mean	Middle.SD	Lower.mean	Lower.SD
1	4	0.91703412	0.04159884	0.41582777	0.07347942	0.5538645	0.1150443	0.03030768

```
data1 <- select(data,"ID","Source","Cu","Pb","V","Fe","DCu","DPb","DV","DFe","n")
```

id	GOF.mean	GOF.SD	Upper.mean	Upper.SD	Middle.mean	Middle.SD	Lower.mean	Lower.SD
1	4	0.92939428	0.03957419	0.59254563	0.07074942	0.2965161	0.1167933	0.11093831

```
data1 <- select(data,"ID","Source","Cu","Pb","V","DCu","DPb","DV","n")
```

id	GOF.mean	GOF.SD	Upper.mean	Upper.SD	Middle.mean	Middle.SD	Lower.mean	Lower.SD
1	4	0.96	0.027	0.603	0.062	0.29	0.107	0.102

```
data1 <- select(data,"ID","Source","Pb","K","Fe","DPb","DK","DFe","n")
```

id	GOF.mean	GOF.SD	Upper.mean	Upper.SD	Middle.mean	Middle.SD	Lower.mean	Lower.SD
1	4	0.92407439	0.06279407	0.7724627	0.1353151	-0.08447067	0.11342630	0.3120080