

Supporting Information

Generated by R (version 3.1.1)

Metamorphic Province (non-Motagua Valley) and Volcanic Highlands excluded due to each having only 4 and 5 data points, respectively.

Key:

centroid = average of all points in a group

SS = Sum of Squares (between_SS/total_SS = 100% is perfect fit)

Northern Lowlands:

$^{207}\text{Pb}/^{206}\text{Pb}$:

K-Means Report:

Centroids = 2

Cluster means:

$^{206}\text{Pb}/^{204}\text{Pb}$ $^{207}\text{Pb}/^{204}\text{Pb}$

1 22.39229 15.79460

2 19.09218 15.66569

Within cluster sum of squares by cluster:

1.346978, 1.049611

(between_SS/total_SS = 89.4%)

$^{208}\text{Pb}/^{206}\text{Pb}$:

K-Means Report:

Centroids = 2

Cluster means:

$^{206}\text{Pb}/^{204}\text{Pb}$ $^{208}\text{Pb}/^{204}\text{Pb}$

1 22.39229 38.66207

2 19.09218 38.78843

Within cluster sum of squares by cluster:

1.358936, 1.280167

(between_SS/total_SS = 88.4 %)

Southern Lowlands:

$^{207}\text{Pb}/^{206}\text{Pb}$:

K-Means Report:

Centroids = 3

Cluster means:

$^{206}\text{Pb}/^{204}\text{Pb}$ $^{207}\text{Pb}/^{204}\text{Pb}$

1 45.62330 16.94360
2 28.24225 16.00115
3 20.44843 15.69600

Within cluster sum of squares by cluster:
0.00000, 14.90283, 17.94353
(between_SS /total_SS = 95.2%)

$^{208}\text{Pb}/^{206}\text{Pb}$:

K-Means Report:

Centroids = 3

Cluster means:

	$^{206}\text{Pb}/^{204}\text{Pb}$	$^{208}\text{Pb}/^{204}\text{Pb}$
1	20.44843	38.65338
2	28.24225	38.65780
3	45.62330	38.85490

Within cluster sum of squares by cluster:
18.16371, 14.85656, 0.00000
(between_SS /total_SS = 95.2%)

Motagua Valley:

$^{207}\text{Pb}/^{206}\text{Pb}$:

K-Means Report:

Centroids = 2

Cluster means:

	$^{206}\text{Pb}/^{204}\text{Pb}$	$^{207}\text{Pb}/^{204}\text{Pb}$
1	20.46376	15.76137
2	18.70488	15.61996

Within cluster sum of squares by cluster:
0.0000000, 0.2554385
(between_SS/total_SS = 91.4 %)

$^{208}\text{Pb}/^{206}\text{Pb}$:

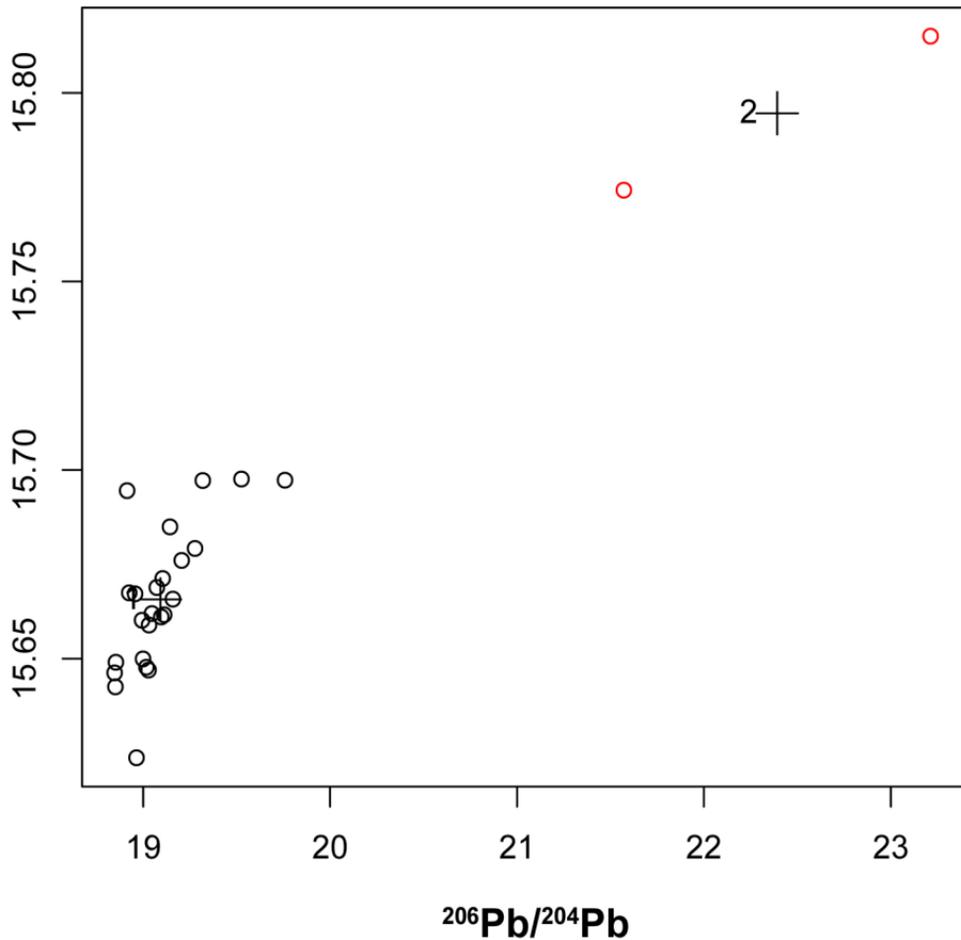
K-Means Report:

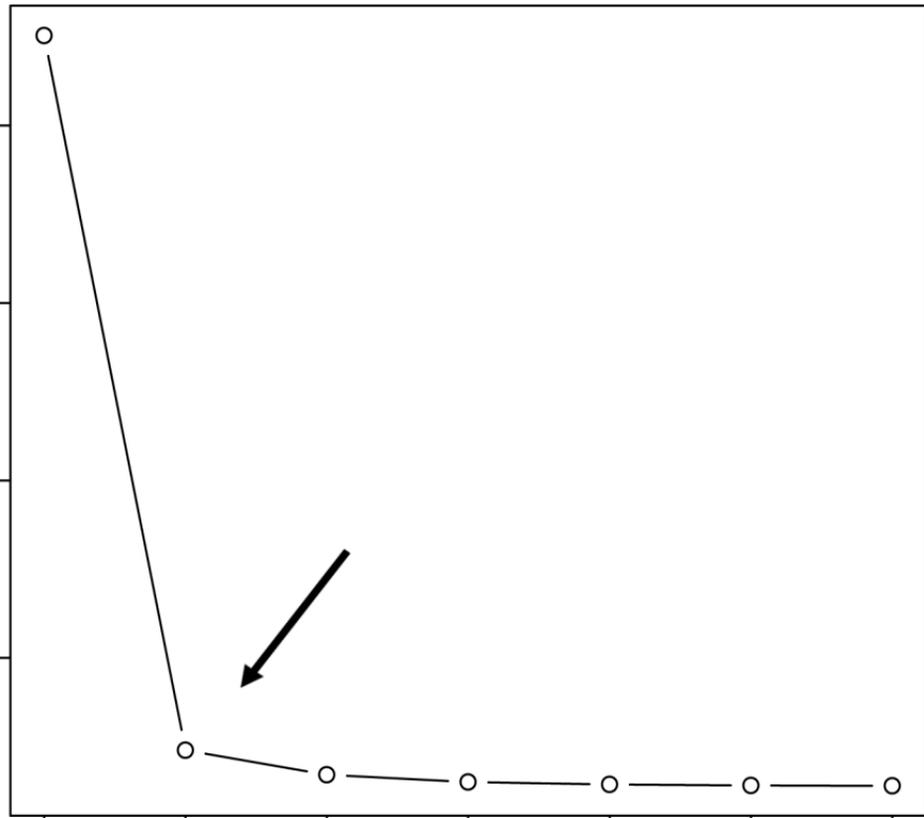
Centroids = 3

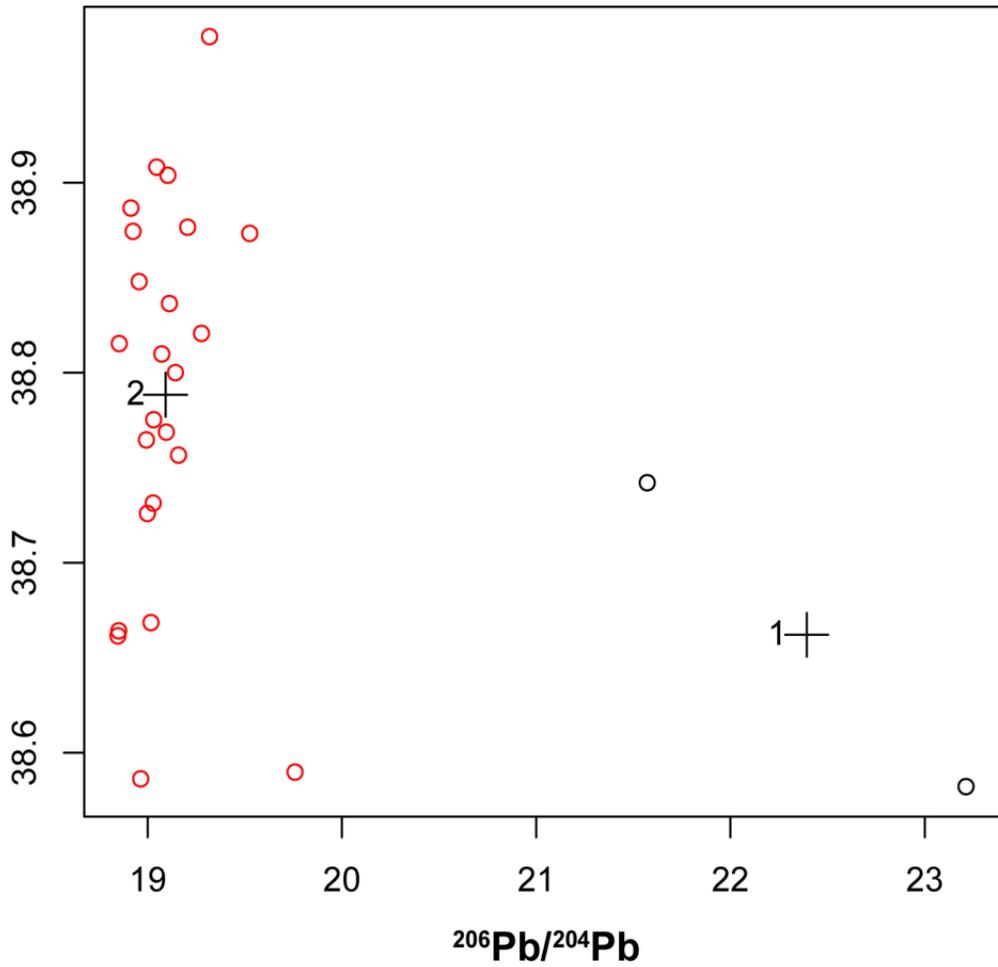
Cluster means:

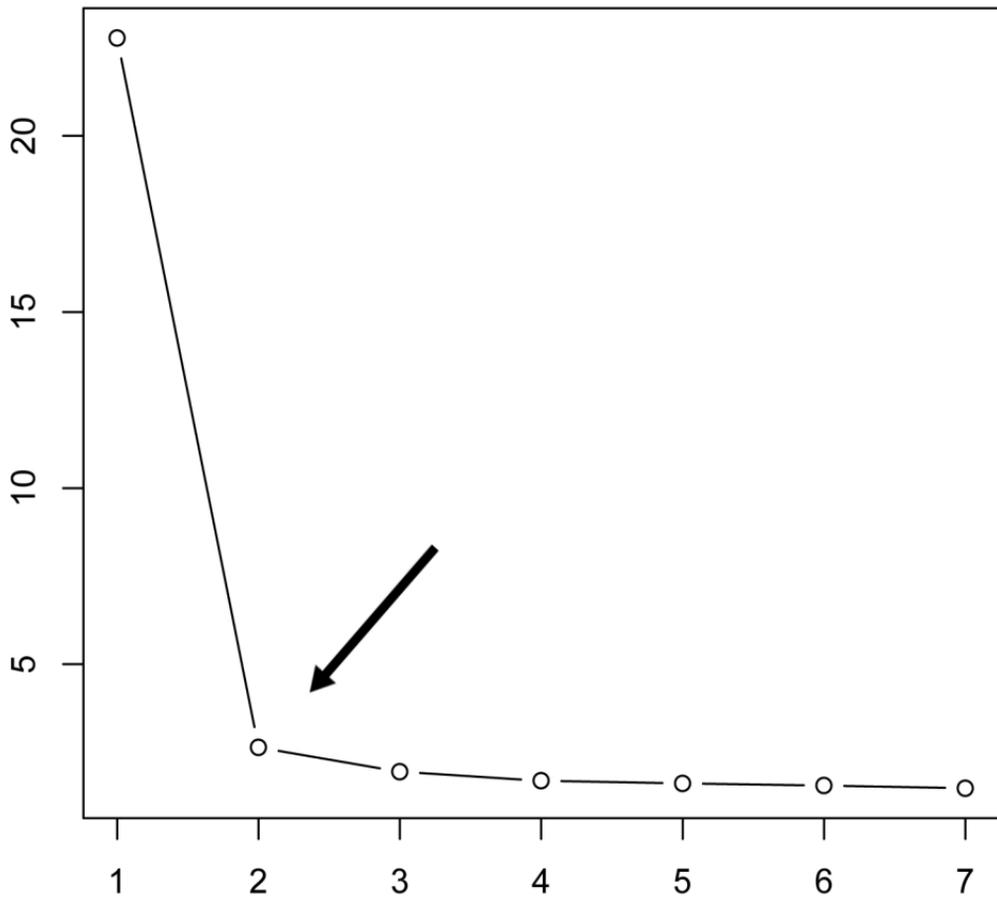
	$^{206}\text{Pb}/^{204}\text{Pb}$	$^{208}\text{Pb}/^{204}\text{Pb}$
1	18.47330	37.99805
2	18.79751	38.62367
3	20.46376	39.37748

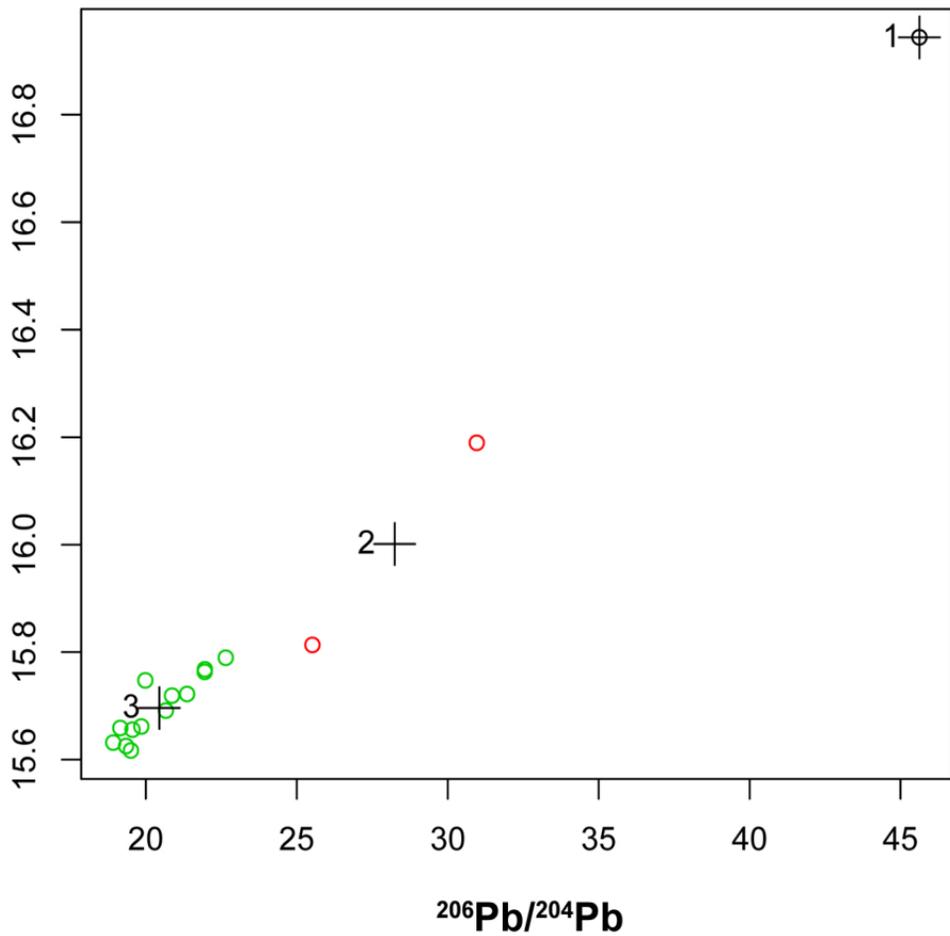
Within cluster sum of squares by cluster:
0.13116280, 0.09497238, 0.00000000
(between_SS/total_SS = 94.9 %)

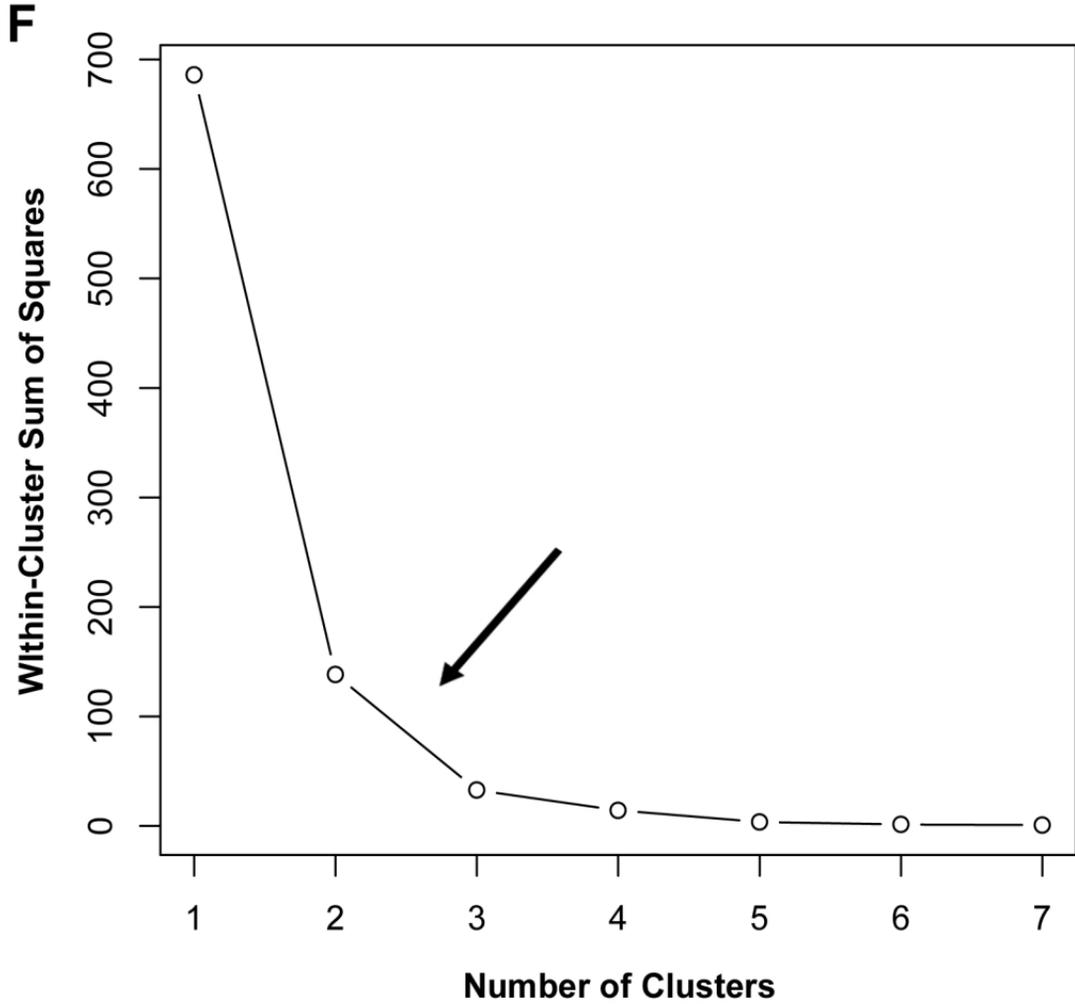
A $^{207}\text{Pb}/^{204}\text{Pb}$  $^{206}\text{Pb}/^{204}\text{Pb}$

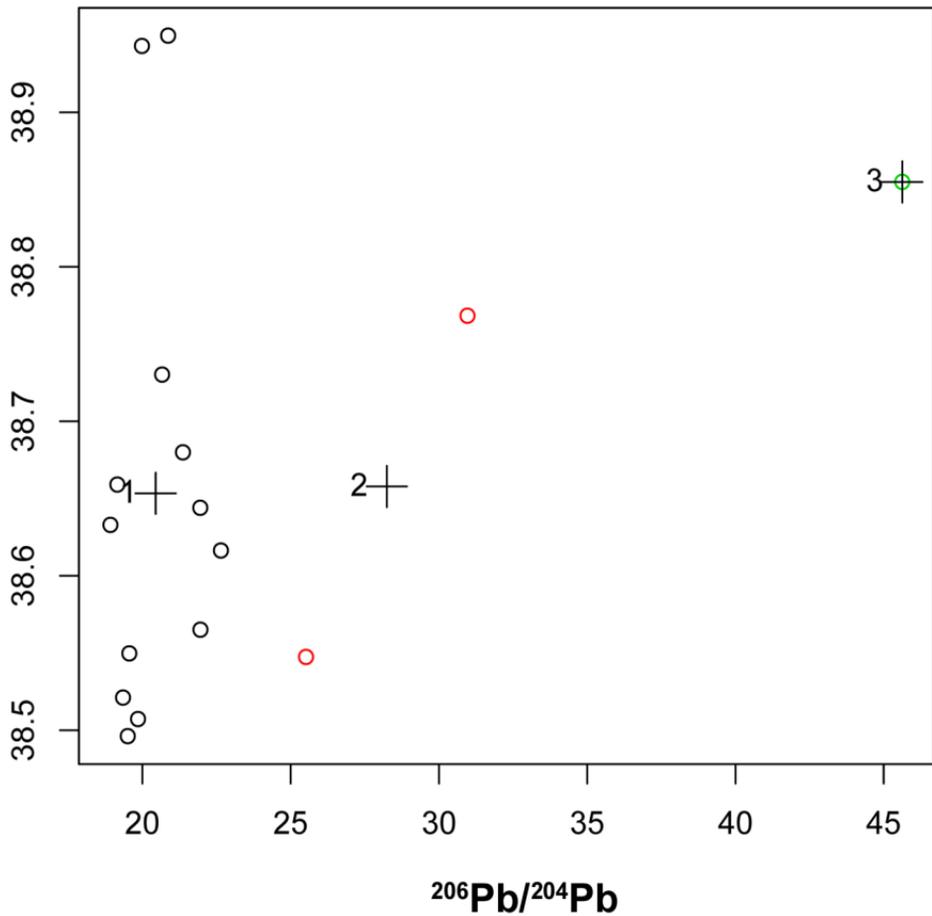
B**Within-Cluster Sum of Squares**20
15
10
5**Number of Clusters**

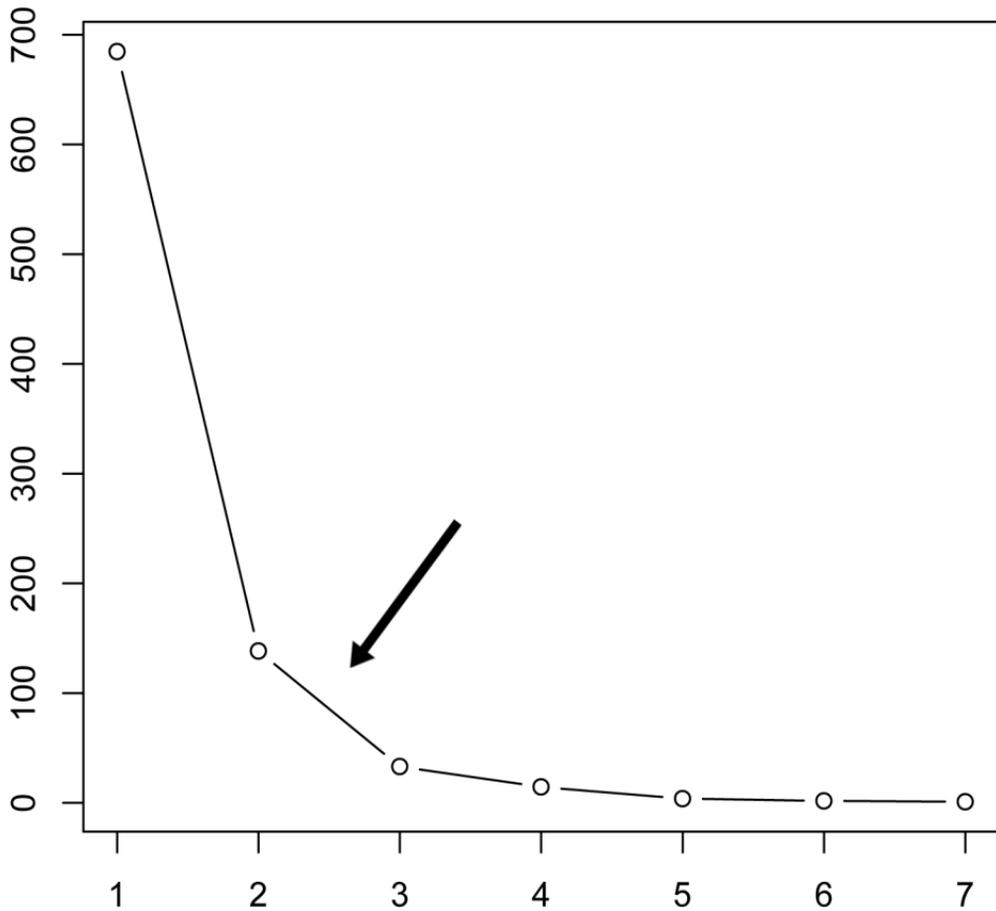
C $^{208}\text{Pb}/^{204}\text{Pb}$  $^{206}\text{Pb}/^{204}\text{Pb}$

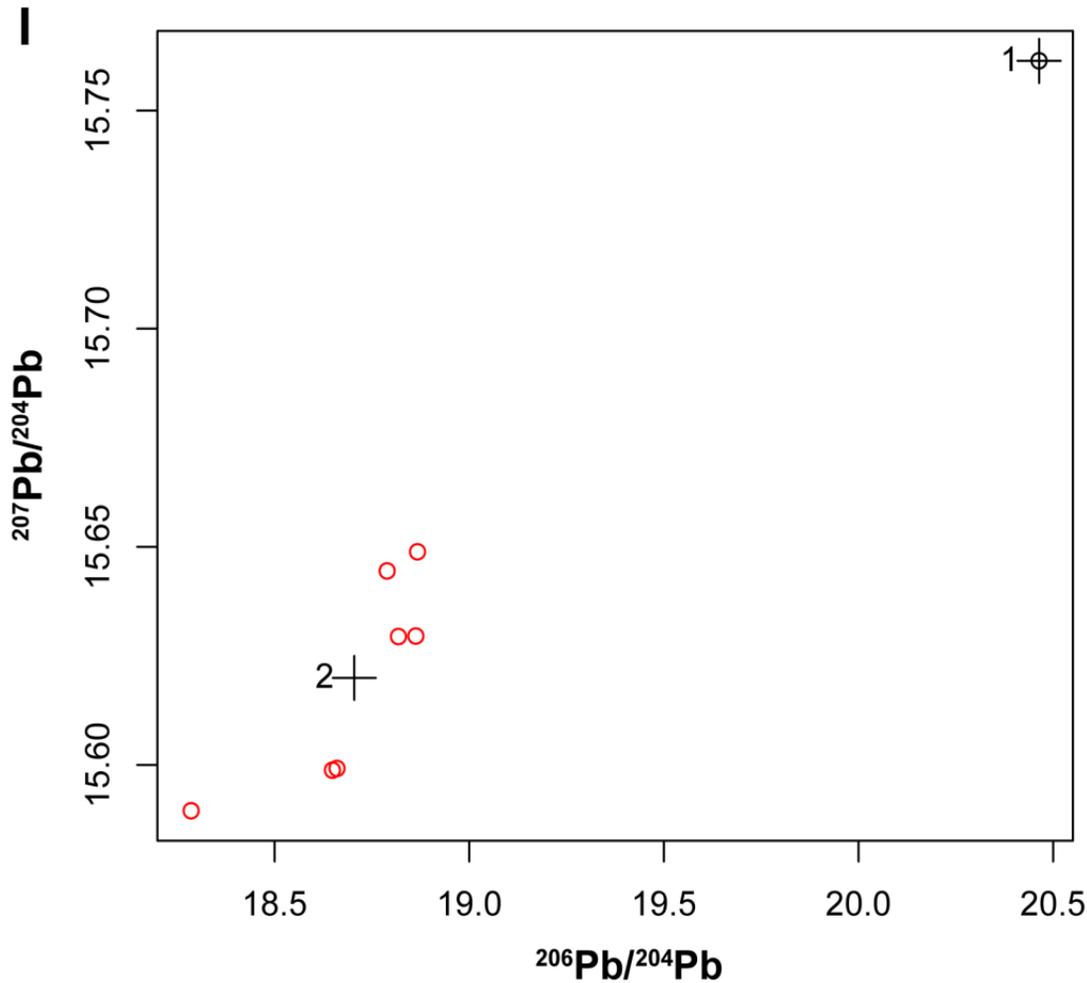
D**Within-Cluster Sum of Squares****Number of Clusters**

\bar{m} $^{207}\text{Pb}/^{204}\text{Pb}$  $^{206}\text{Pb}/^{204}\text{Pb}$



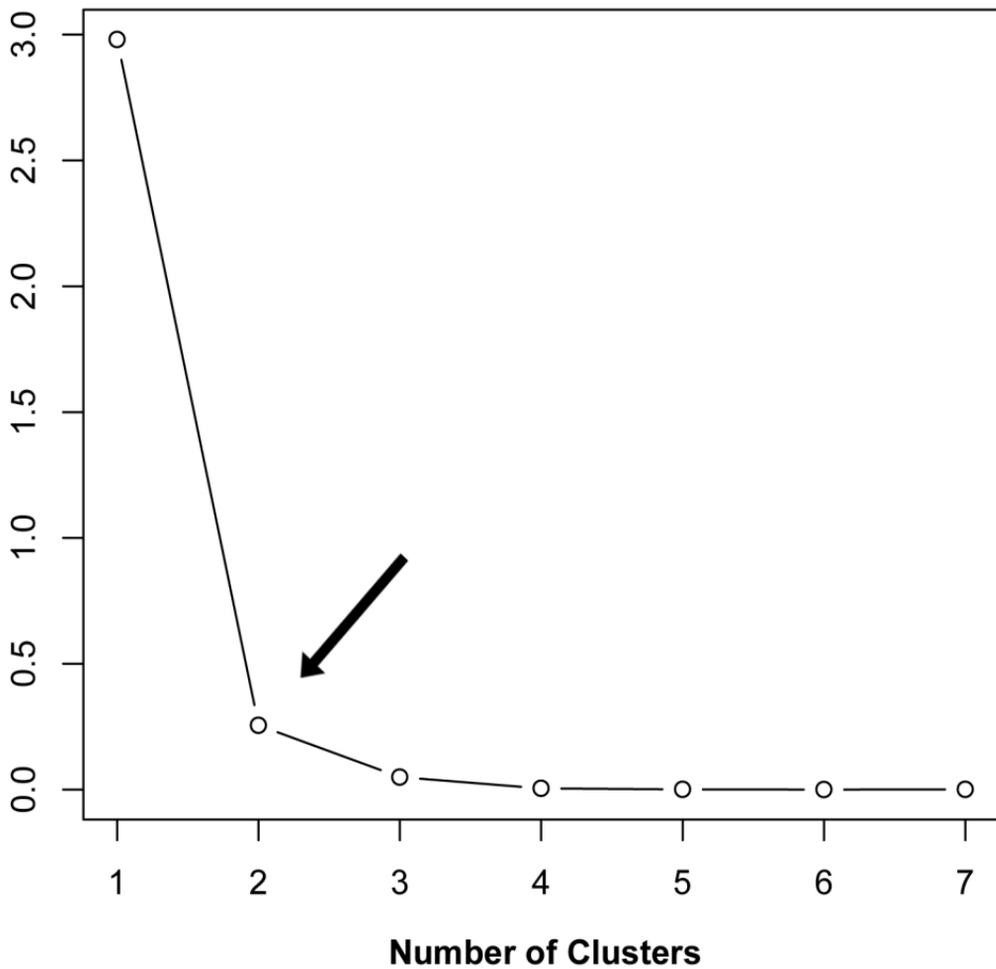
G **$^{208}\text{Pb}/^{204}\text{Pb}$** 

H**Within-Cluster Sum of Squares****Number of Clusters**



Within-Cluster Sum of Squares

U



K