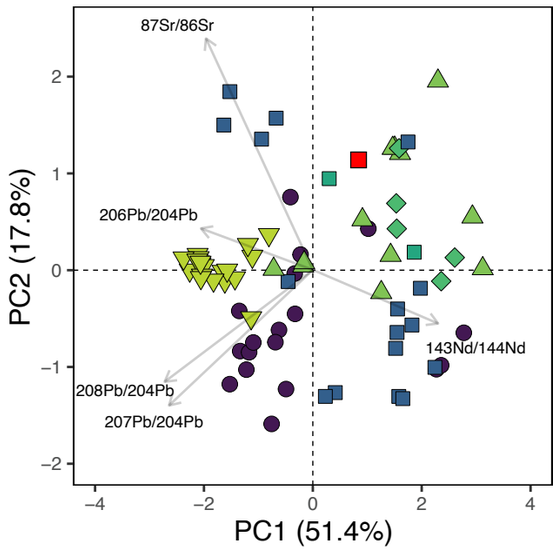
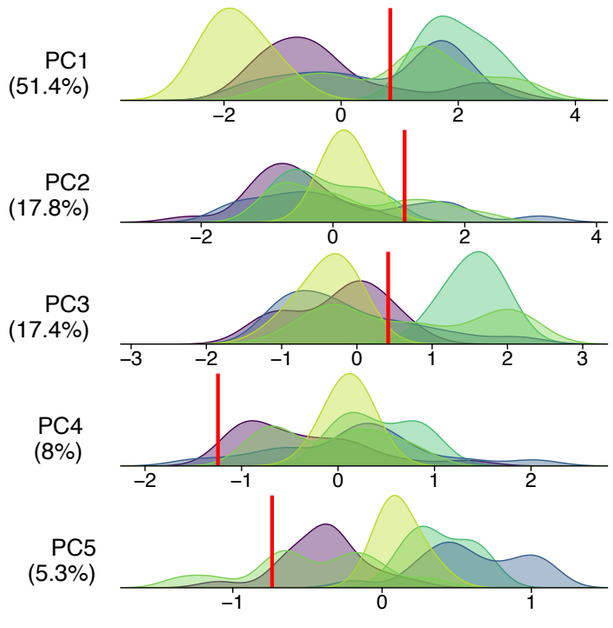
From Principal component analysis (PCA) to “Distance Index”

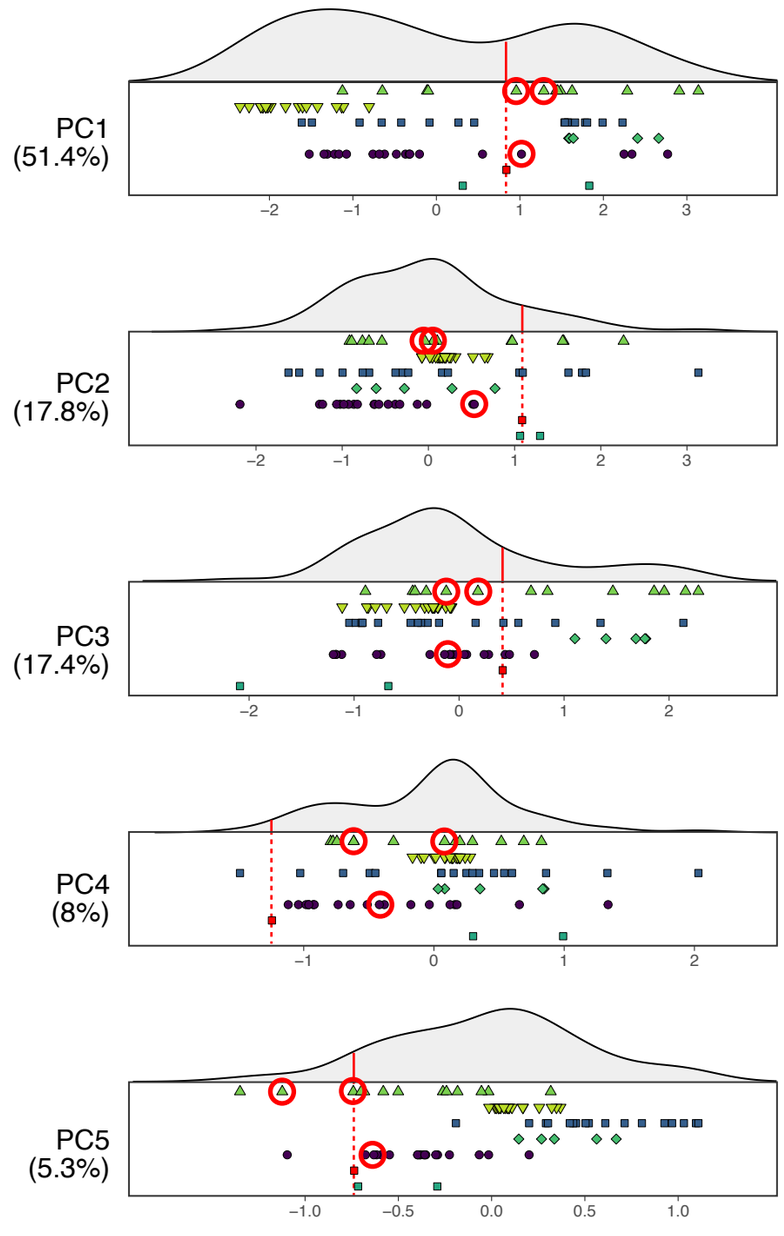
Plot of the two most significant principal components (PCs)



Density plot of distribution within each PC



Distribution within each PC



1 Distance (d) between each point (A) and the artefact (B) in each dimension

$$d = \sqrt{(xA - xB)^2}$$

2 Weighted mean ($\bar{x}$) of distances (d), with percentages of variance used as weights (w)

$$\bar{x} = \frac{(w_{PC1}\, d_{PC1}) + (w_{PC2}\, d_{PC2}) \ldots}{w_{PC1} + w_{PC2} + w_{PC3} + w_{PC4} + w_{PC5}}$$

3 Division of the range of weighted mean values into intervals of distance to the artefact

Distance index = interquartile range