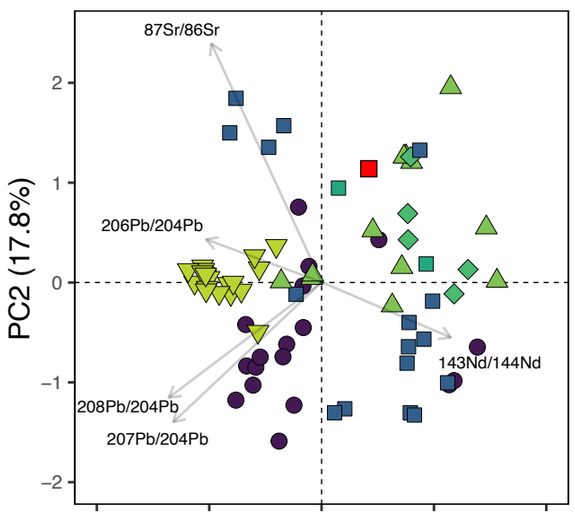
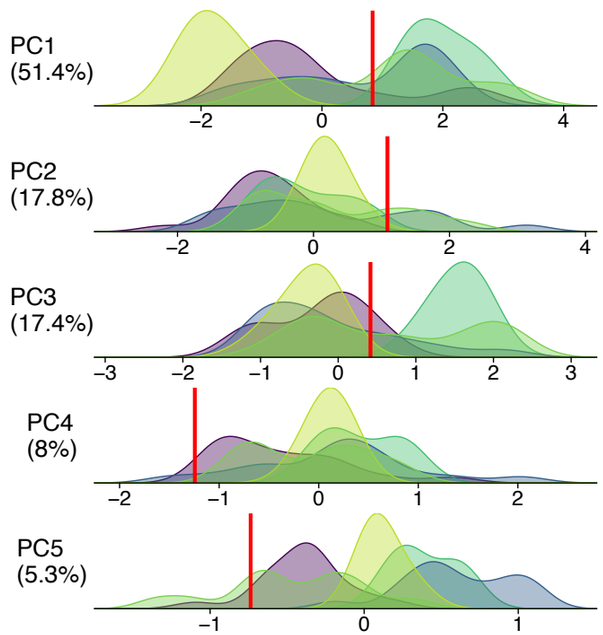
From Principal component analysis (PCA) to “Distance Index”

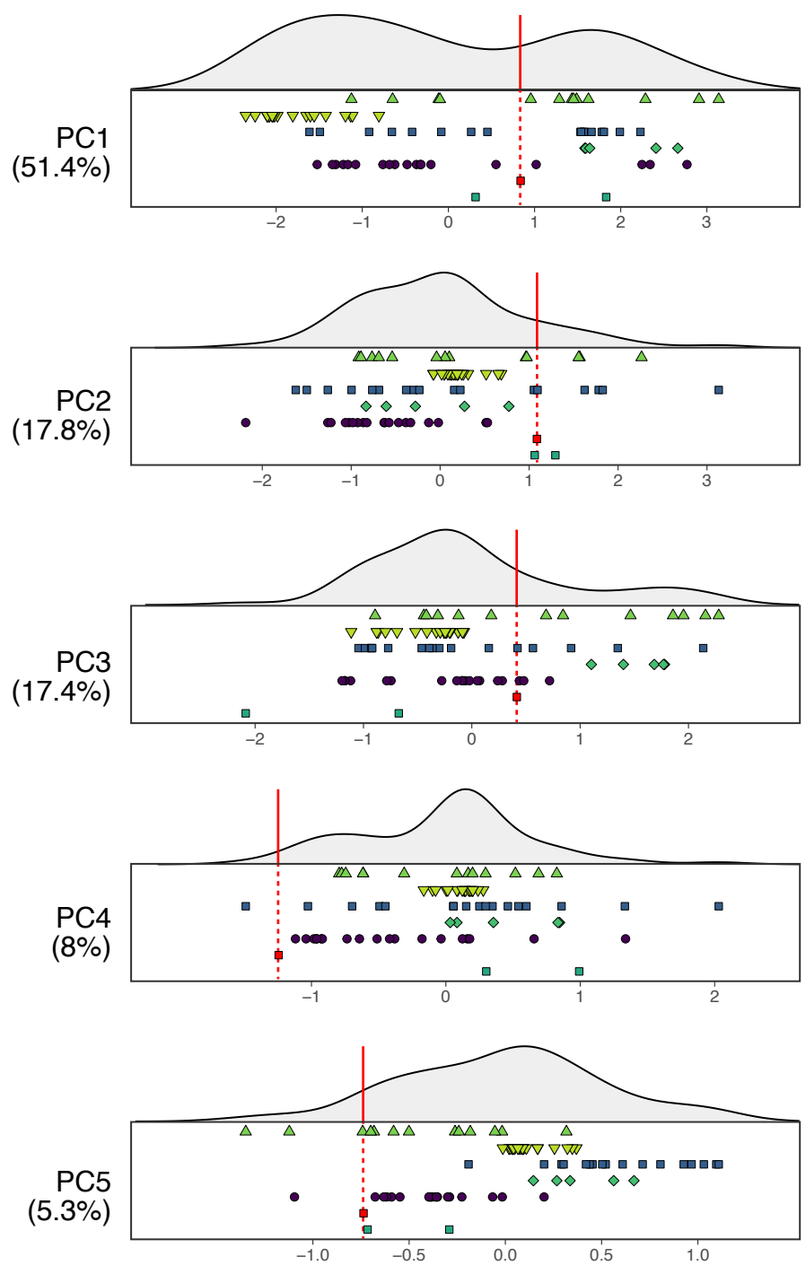
Plot of the two most significant principal components (PCs)



Density plot of distribution within each PC



Distribution within each PC



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

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

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

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

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

Distance index = interquartile range