archeospec

Fri Jul 13 16:58:21 2018

Contents

Dataset

This report includes the signatures for 30 files. A completed listing can be found at the end of the document.

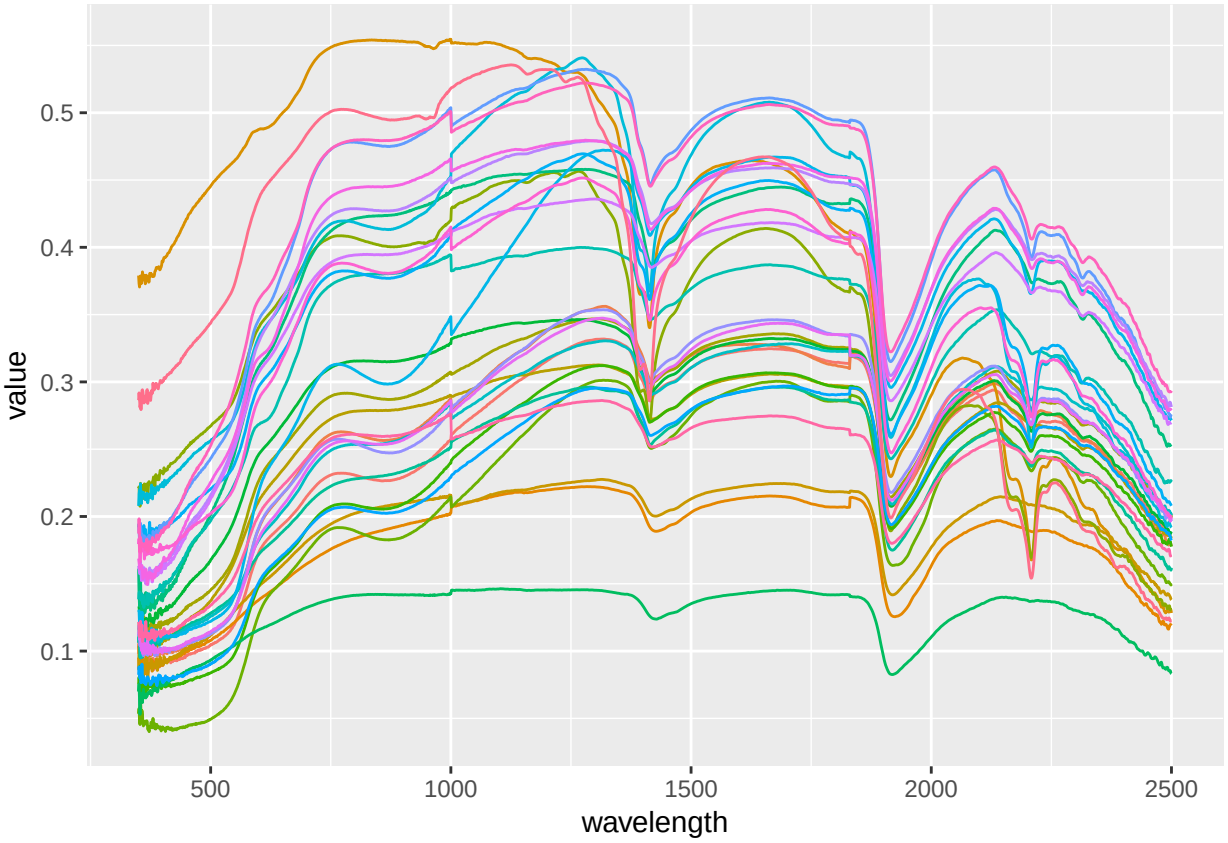
Parameters

The following parameters have been used:

- Unmixing Technique: Manually selected endmembers
- Clustering Technique: Endmembers selected as centroids
- No wavelength ranges have been cleaned at the beggining of the signature
- No wavelength ranges have been cleaned at the end of the signature
- No smoothing has been performed

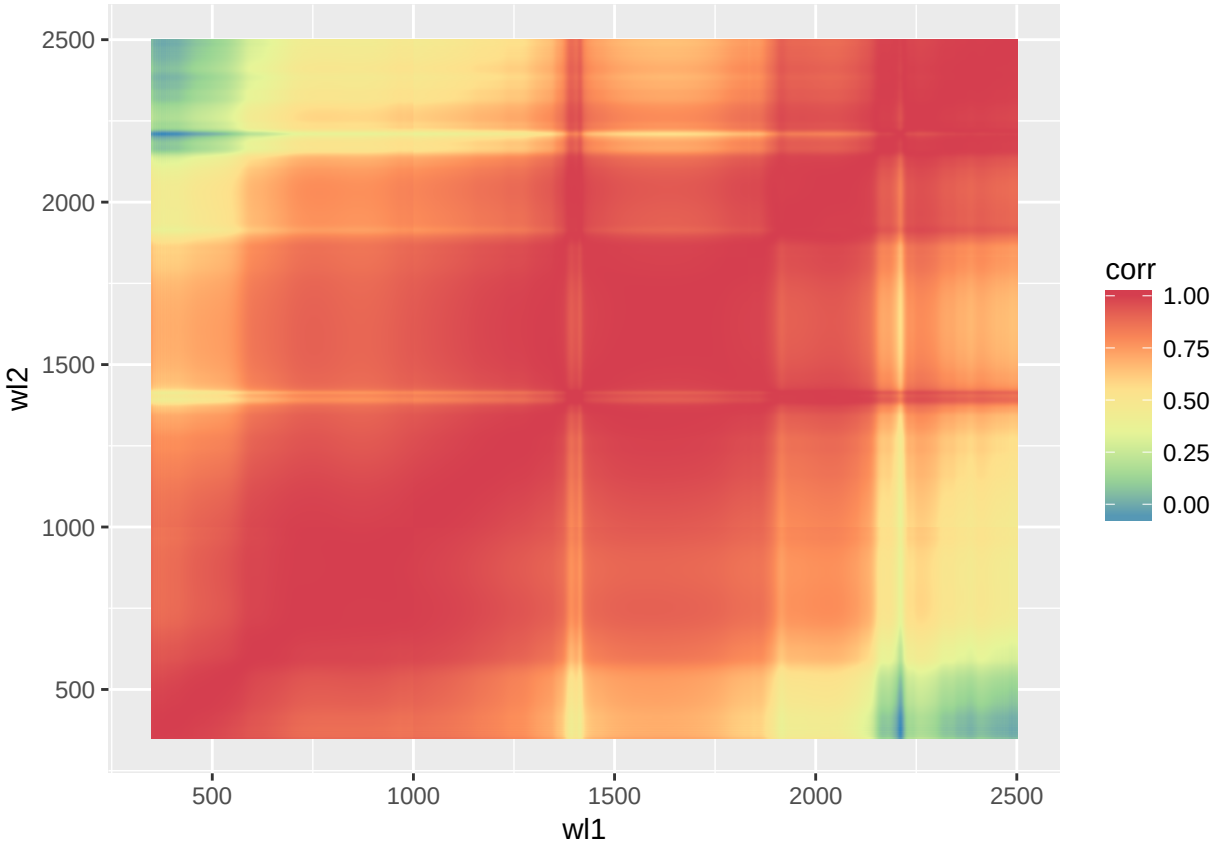
Visualization

The following figure shows the representation of every signature in the dataset. Colors are assigned at random.



Intracorrelation

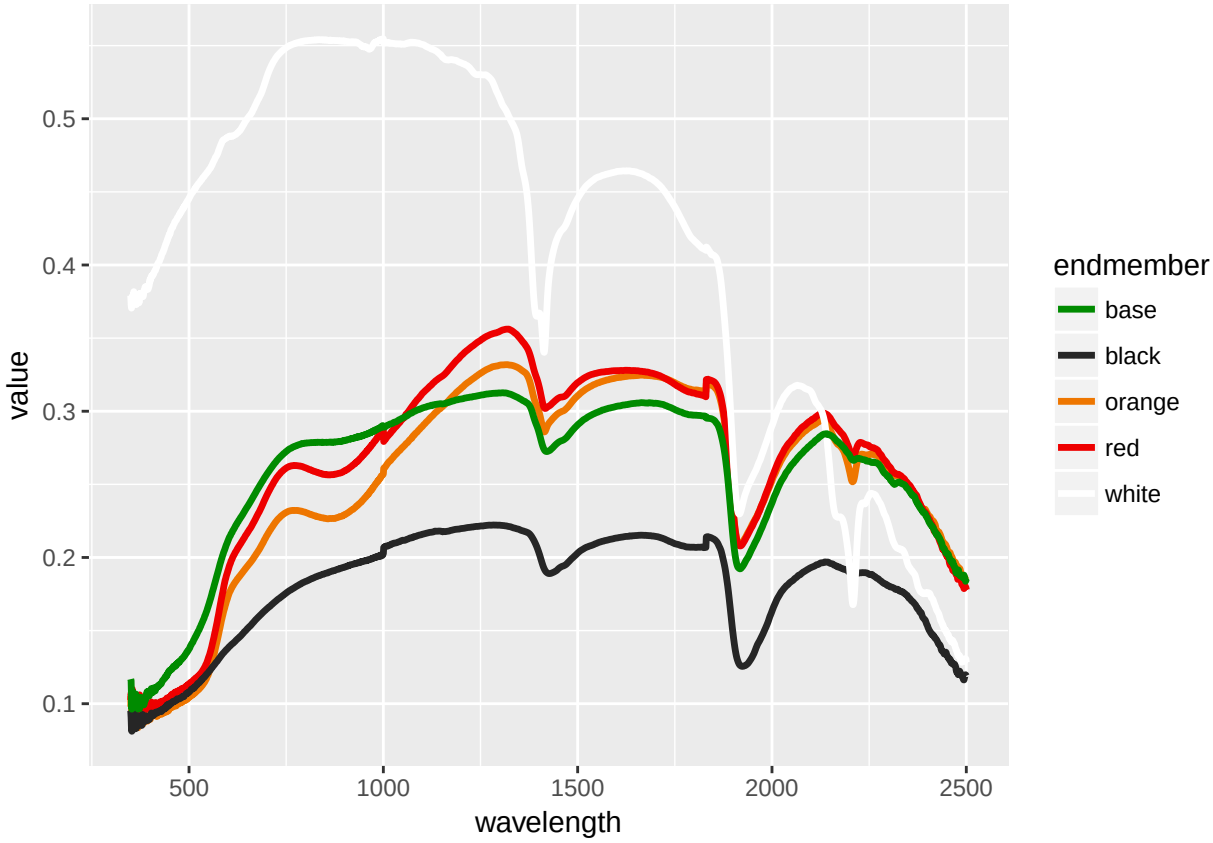
The following figure measures the intracorrelation for each pair of wavelengths.



Unmixing (manual)

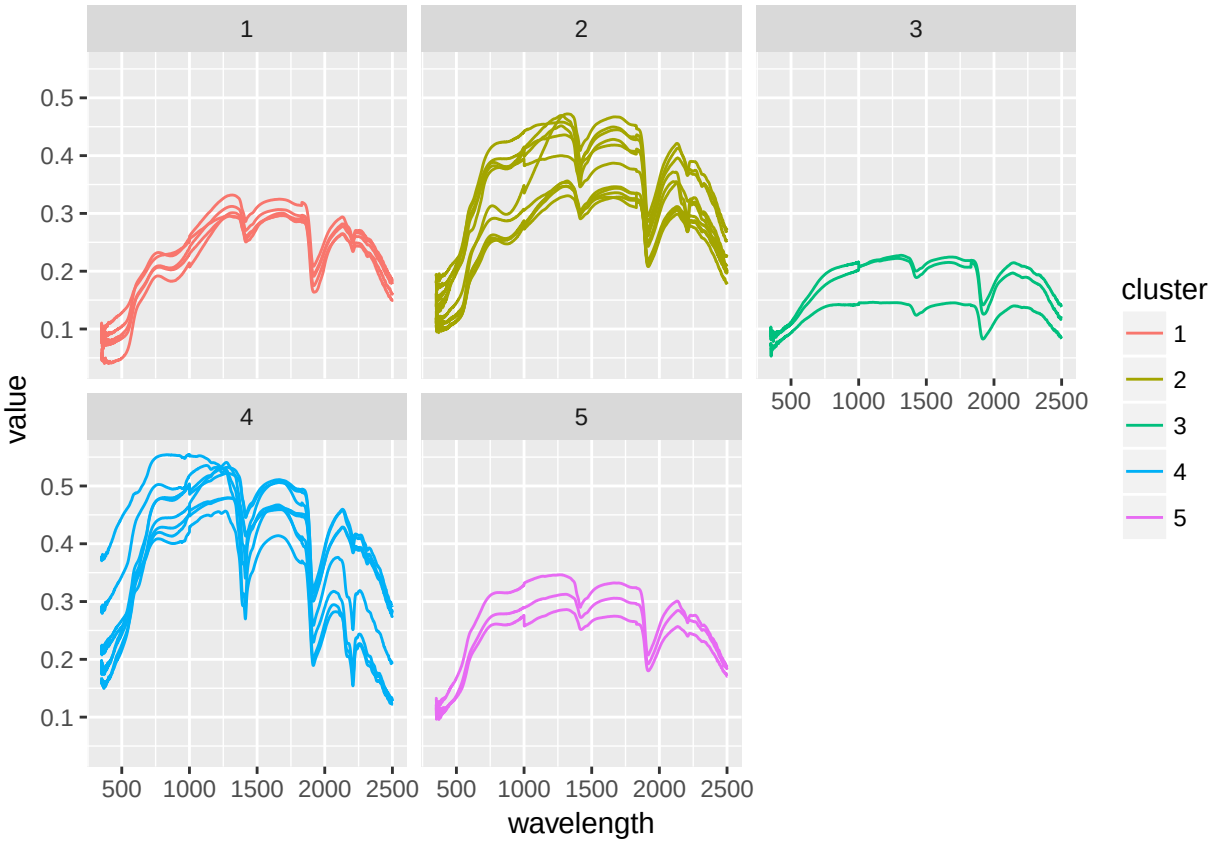
The following table and figure show the 5 endmembers selected manually from the available samples.

endmember	file
orange	signature0000.asd
red	signature0001.asd
black	signature0002.asd
white	signature0003.asd
base	signature0005.asd



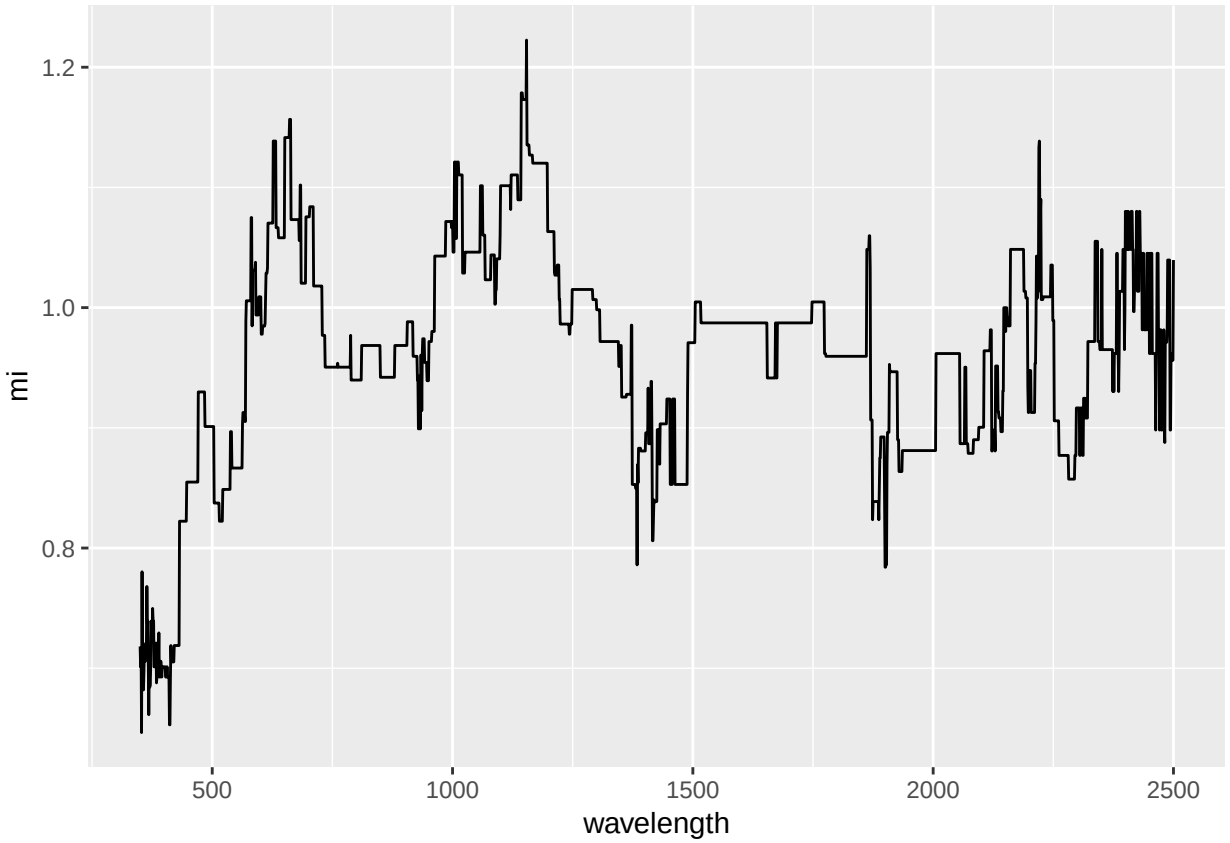
Clustering (manual)

The next figure shows the graphical representation of the dataset classified by the corresponding cluster assigned according to the specified centroids (corresponding with the endmembers).



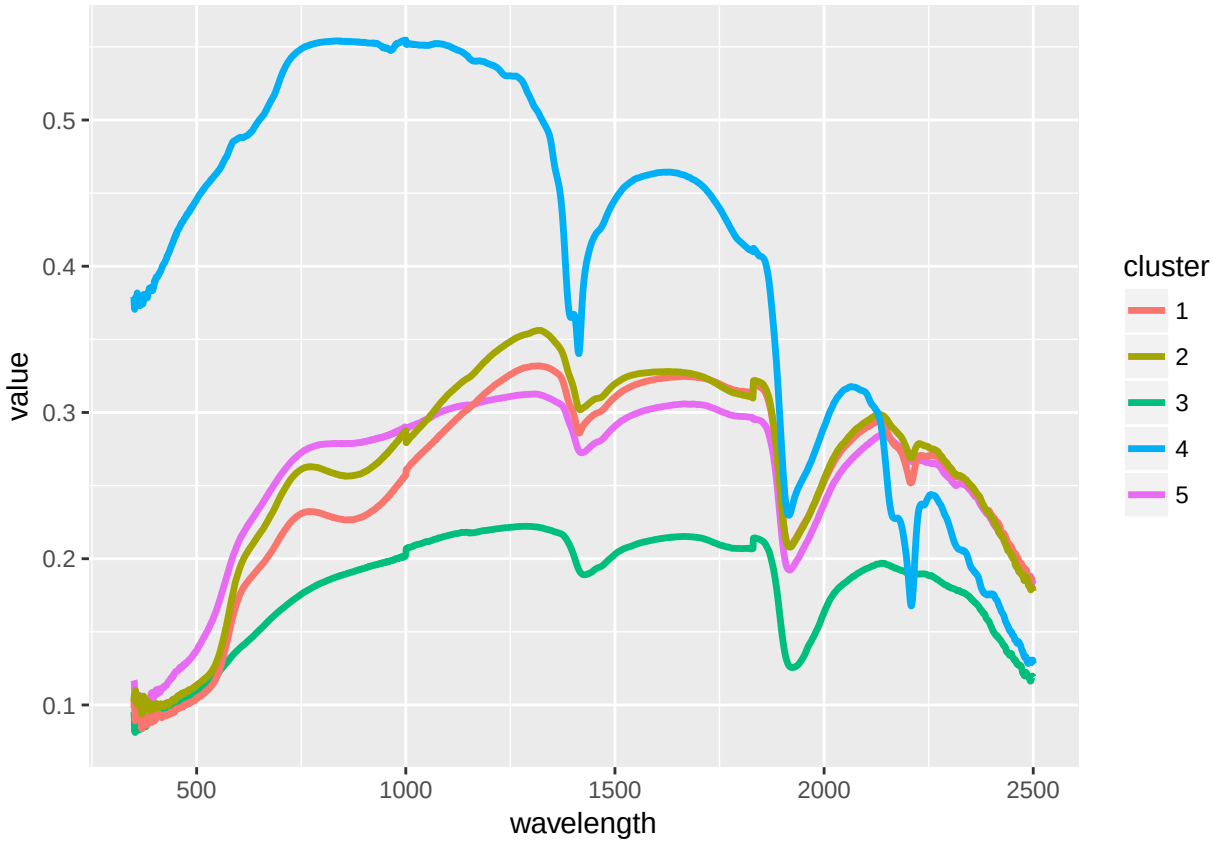
Mutual Information

The following figure shows the mutual information for each wavelength and the assigned cluster as the averaged value for all the samples in the dataset.



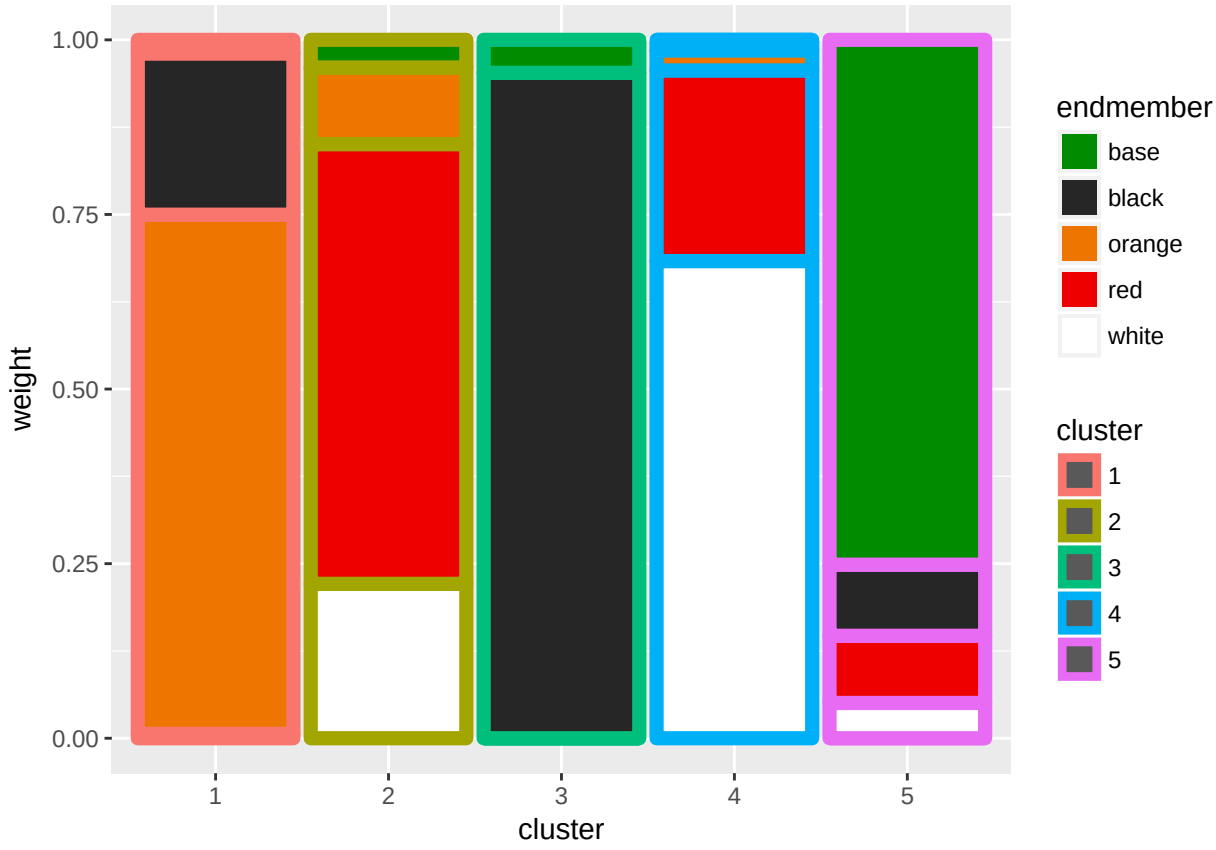
Endmember classification

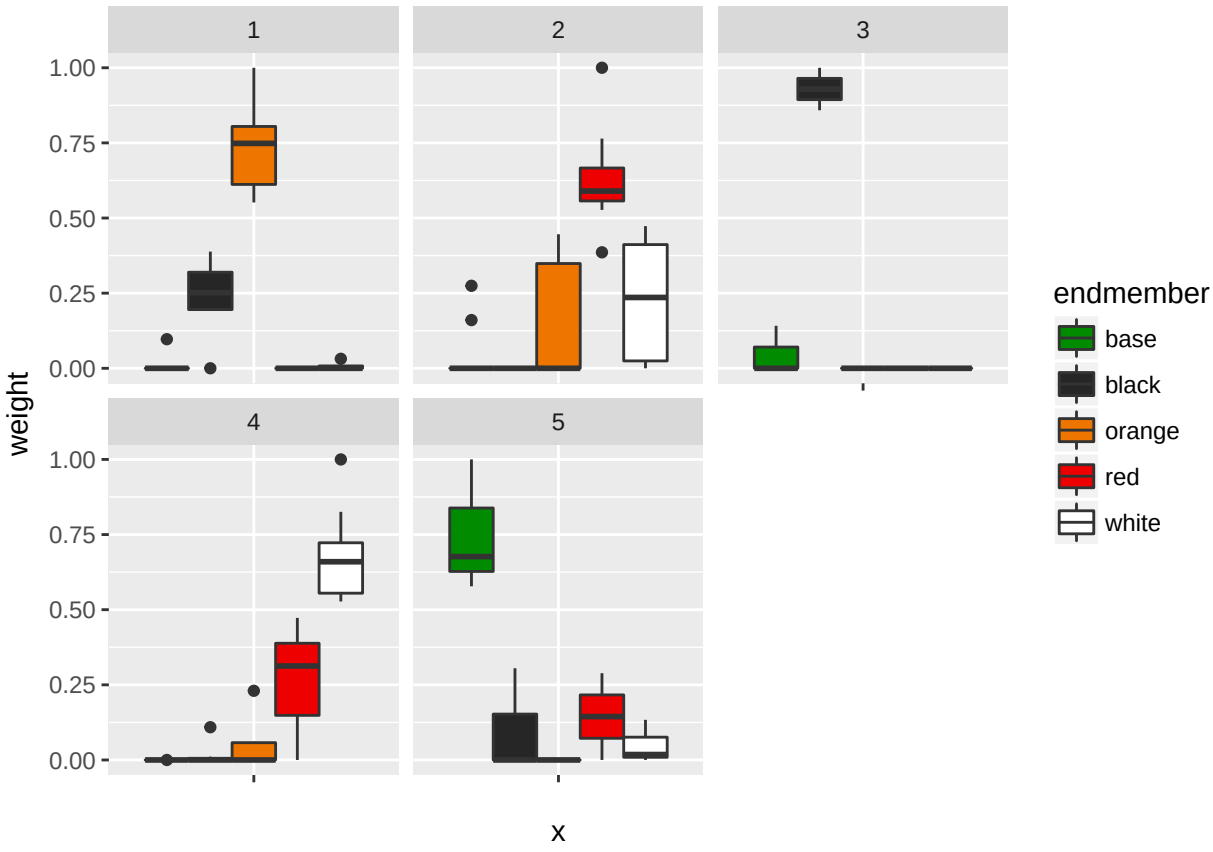
The next figure shows the correspondence between endmembers and clusters, note that kmeans can assign more than one ensemble to the same cluster, leaving some clusters unrepresented.



Endmember weights by cluster

The next two figures show the average mixture for each cluster among all endmembers. In the barplot Each column represents a single cluster and averages the weights of the contained signatures. The different colored segments of the bar represent the weight proportion for each endmember. The boxplot is analogous, with each box representing the distribution of weight for a particular endmember, separated in an individual plot for each cluster.

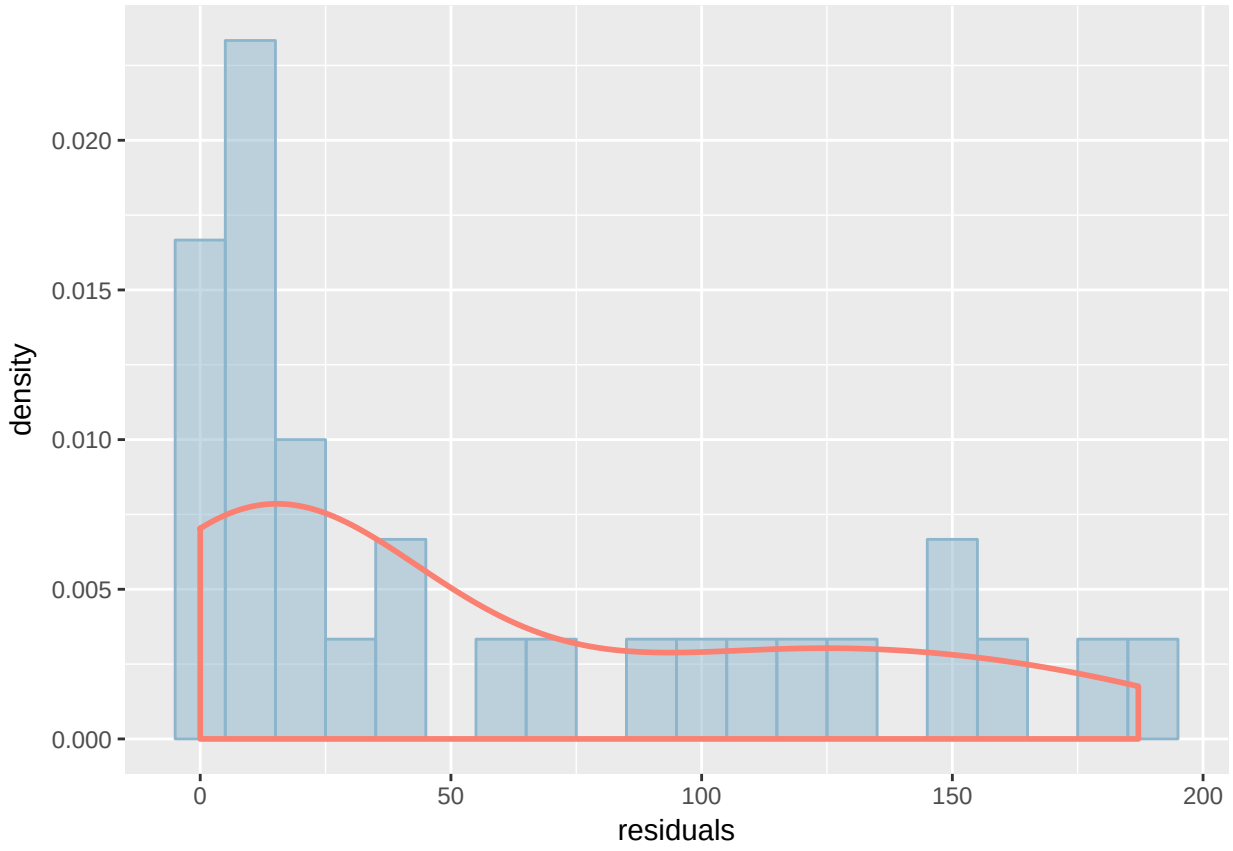



1
2
3
4
5
1.00
0.75
0.50
0.25
0.00
weight
x
endmember
base
black
orange
red
white

Residual values

The following table and figure show the distribution of the residual component from the the unmixing process. The distribution includes all endmembers and signatures in the dataset.

Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
0	11.57293	28.60715	59.5672	110.6532	187.0987



Summary table

The following table contains the summary of the whole experiment, showing the assigned cluster, distribution of weights and residuals for each signature in the dataset.

file	orange	red	black	white	base	residual
signature0000.asd	1.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.000000
signature0001.asd	0.0000000	1.0000000	0.0000000	0.0000000	0.0000000	0.000000
signature0002.asd	0.0000000	0.0000000	1.0000000	0.0000000	0.0000000	0.000000
signature0003.asd	0.0000000	0.0000000	0.0000000	1.0000000	0.0000000	0.000000
signature0004.asd	0.0000000	0.0000000	0.8585429	0.0000000	0.1414571	10.907531
signature0005.asd	0.0000000	0.0000000	0.0000000	0.0000000	1.0000000	0.000000
signature0006.asd	0.0000000	0.6492648	0.0000000	0.0761876	0.2745477	14.647096
signature0007.asd	0.2301933	0.1039789	0.1089780	0.5568497	0.0000000	34.543630
signature0008.asd	0.6117484	0.0000000	0.3882516	0.0000000	0.0000000	37.805917
signature0009.asd	0.8046357	0.0000000	0.1953643	0.0000000	0.0000000	14.897767
signature0010.asd	0.0000000	0.2885436	0.0000000	0.1336018	0.5778546	13.569145
signature0011.asd	0.0000000	0.0000000	1.0000000	0.0000000	0.0000000	113.250013
signature0012.asd	0.0000000	0.5270256	0.0000000	0.4729744	0.0000000	126.929109
signature0013.asd	0.5518222	0.0000000	0.3196861	0.0316234	0.0968683	6.561241
signature0014.asd	0.0000000	0.6835330	0.0000000	0.3164670	0.0000000	60.171478
signature0015.asd	0.4461284	0.3858825	0.0000000	0.0075456	0.1604435	19.495135
signature0016.asd	0.0000000	0.3673836	0.0000000	0.6326164	0.0000000	123.567877
signature0017.asd	0.0000000	0.7643482	0.0000000	0.2356518	0.0000000	163.761534
signature0018.asd	0.0000000	0.5490726	0.0000000	0.4509274	0.0000000	92.733466
signature0019.asd	0.7483491	0.0000000	0.2516509	0.0000000	0.0000000	22.670666
signature0020.asd	0.0000000	0.3117442	0.0000000	0.6882558	0.0000000	187.098670
signature0021.asd	0.3486409	0.6255469	0.0000000	0.0258121	0.0000000	18.804349
signature0022.asd	0.0000000	0.4726668	0.0000000	0.5273332	0.0000000	147.309469
signature0023.asd	0.0000000	0.5869949	0.0000000	0.4130051	0.0000000	102.862694
signature0024.asd	0.4120744	0.5645638	0.0000000	0.0233618	0.0000000	14.038851
signature0025.asd	0.0000000	0.4509488	0.0000000	0.5490512	0.0000000	150.341962
signature0026.asd	0.0000000	0.5897058	0.0000000	0.4102942	0.0000000	72.243747
signature0027.asd	0.0000000	0.3135165	0.0000000	0.6864835	0.0000000	184.450388
signature0028.asd	0.0000000	0.0000000	0.3052732	0.0180805	0.6766463	10.558502
signature0029.asd	0.0000000	0.1632989	0.0110202	0.8256809	0.0000000	43.795837

About archeospec

This report has been generated automatically using the archeospec package version 1.0.0.