Characterizing Quartzite Points along Ume river valley, Västerbotten, Sweden

Mattias Sjölander1,✉

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Here is an abstract

1 Umeå University

✉ Correspondence: [Mattias Sjölander <[mattias.sjolander@umu.se](mailto:mattias.sjolander@umu.se)>](mailto:mattias.sjolander@umu.se)

Keywords: XRF; quartzite; pca

Highlights: These are the highlights.

# 1 Introduction

Settlement and mobility is very complex.

# 2 Background

Forsberg (I don’t have Zotero) performed a PCA analysis on the artefact assemblages collected from inland hunter-gatherer sites along North Swedish river systems in the mid 80s. Based on the analysis performed on the morphometrics Forsberg grouped and classified the sites as either residential or activity sites. The resulting settlement pattern was used to test hypotheses of group size….

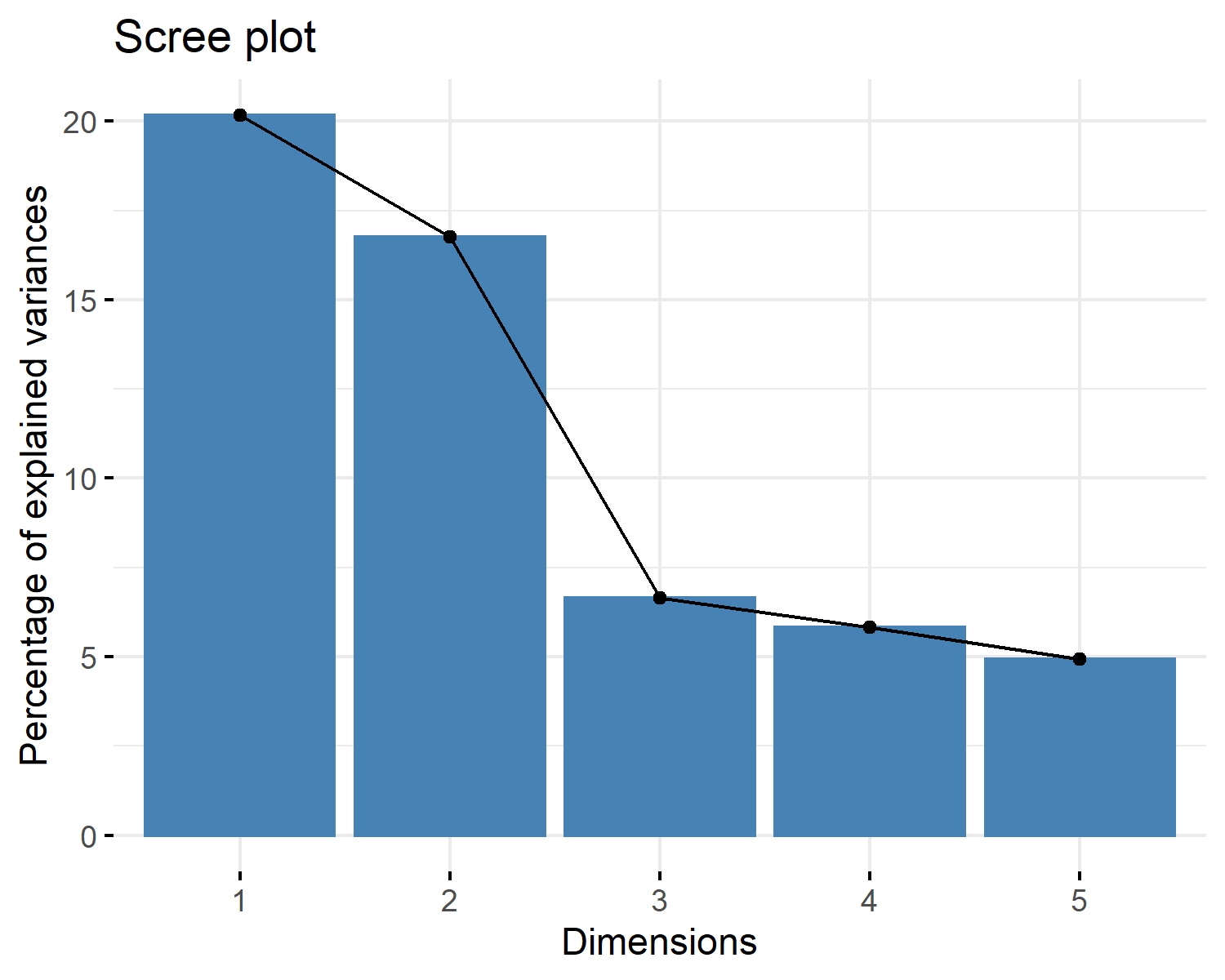
# 3 Methods

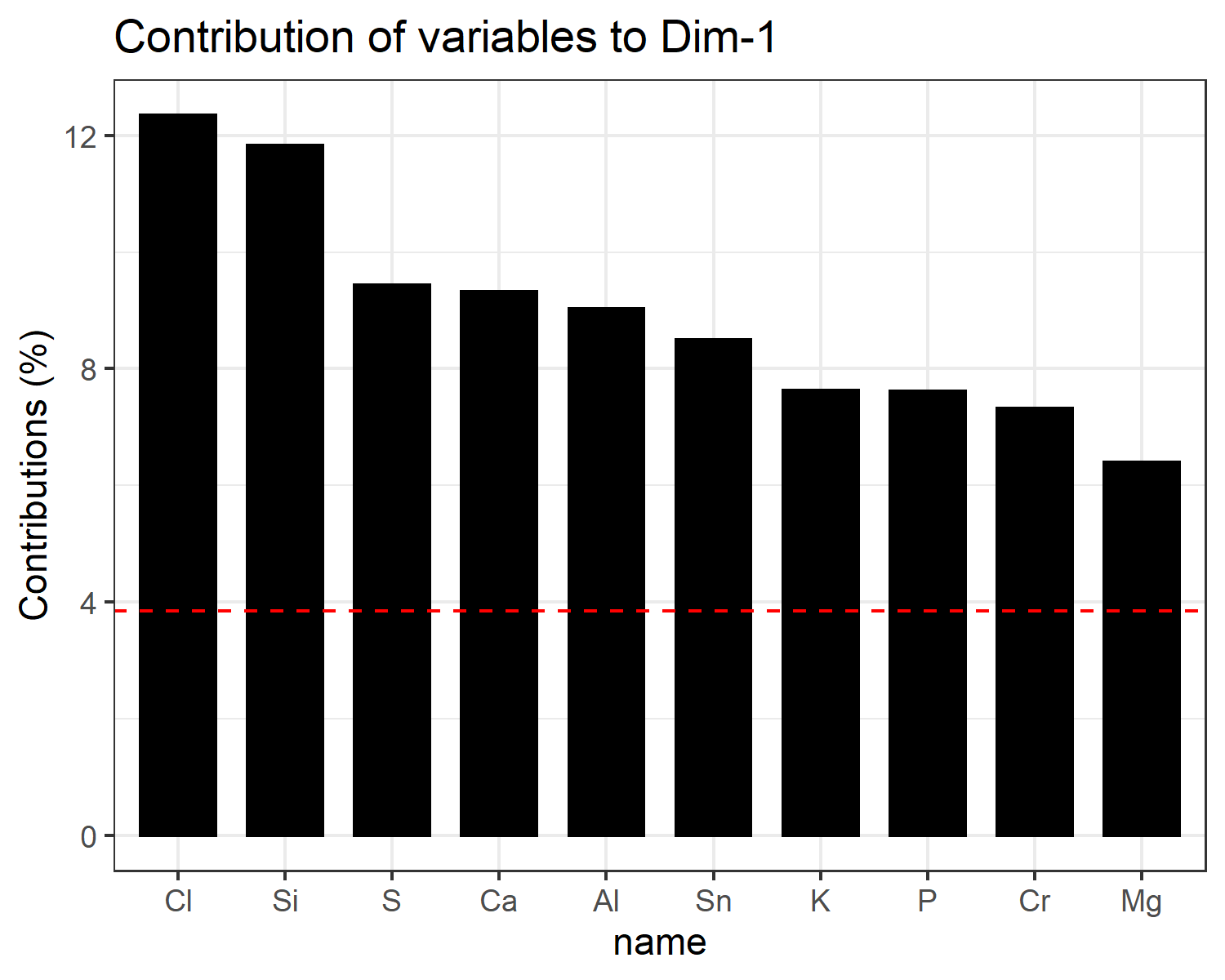
XRF measurements were sampled on quartzite points stored at the collections of Västerbotten and Skellefteå museums. Samples were taken on the surface of the artefacts using a Niton XL 5 portable XRF.

Data was cleaned… (promise).

Then I did this…

# 4 Results

The below figure 4.1 visualises the explained variance of the 5 first principal components (PC). As can be seen most of the variance is explained in the first two PCs.  


Taking a closer look at the first two components, figures 4.2 and 4.3 shows the 10 main contributing variables to each component.  


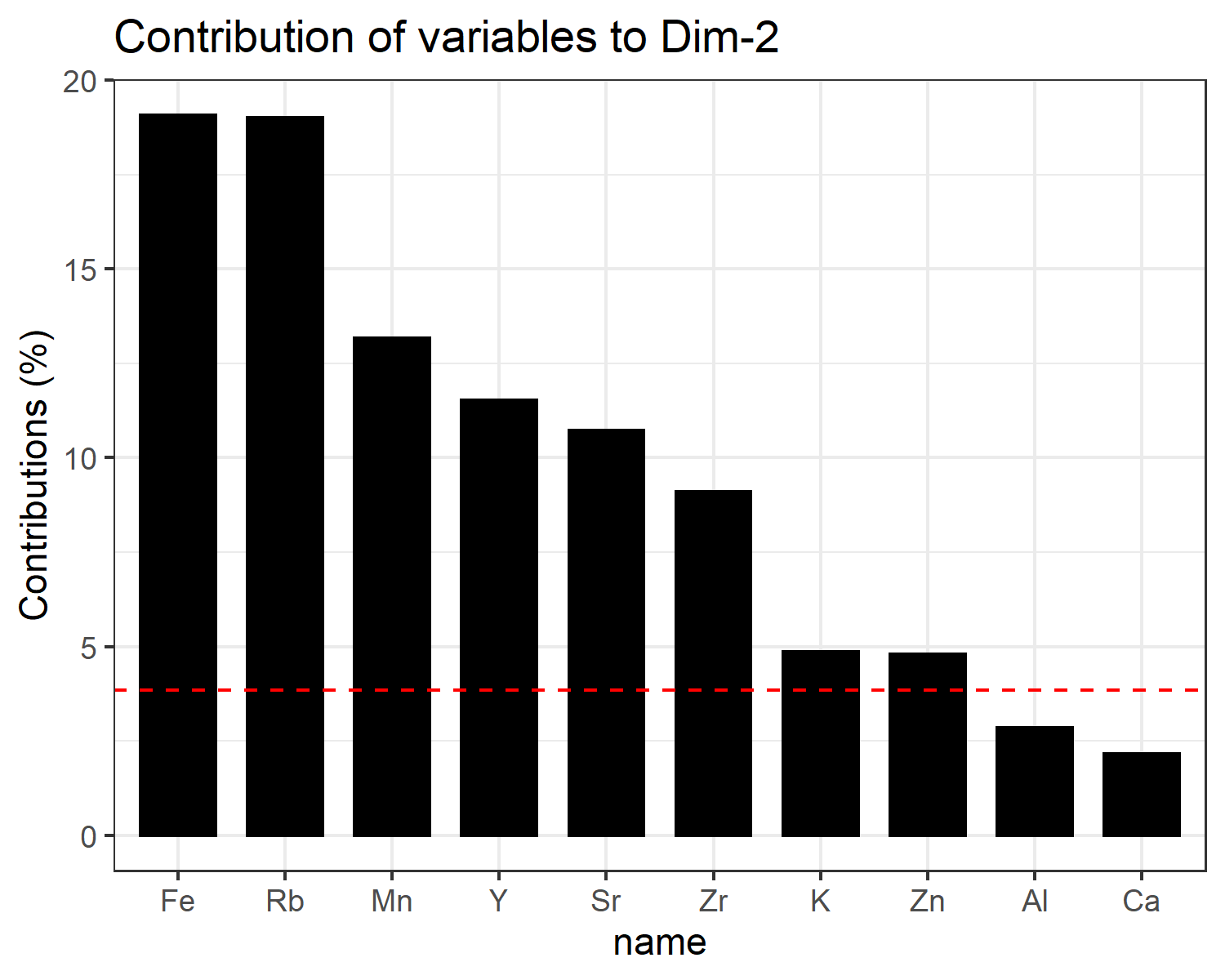


Figure 4.3: Contributions of variables to PC 2

The result of the PCA analysis can be seen in figure 4.4. Most of the measurements group in a larger cluster, demonstrating little difference in their elemental composition in regards to the color of the quartzite.

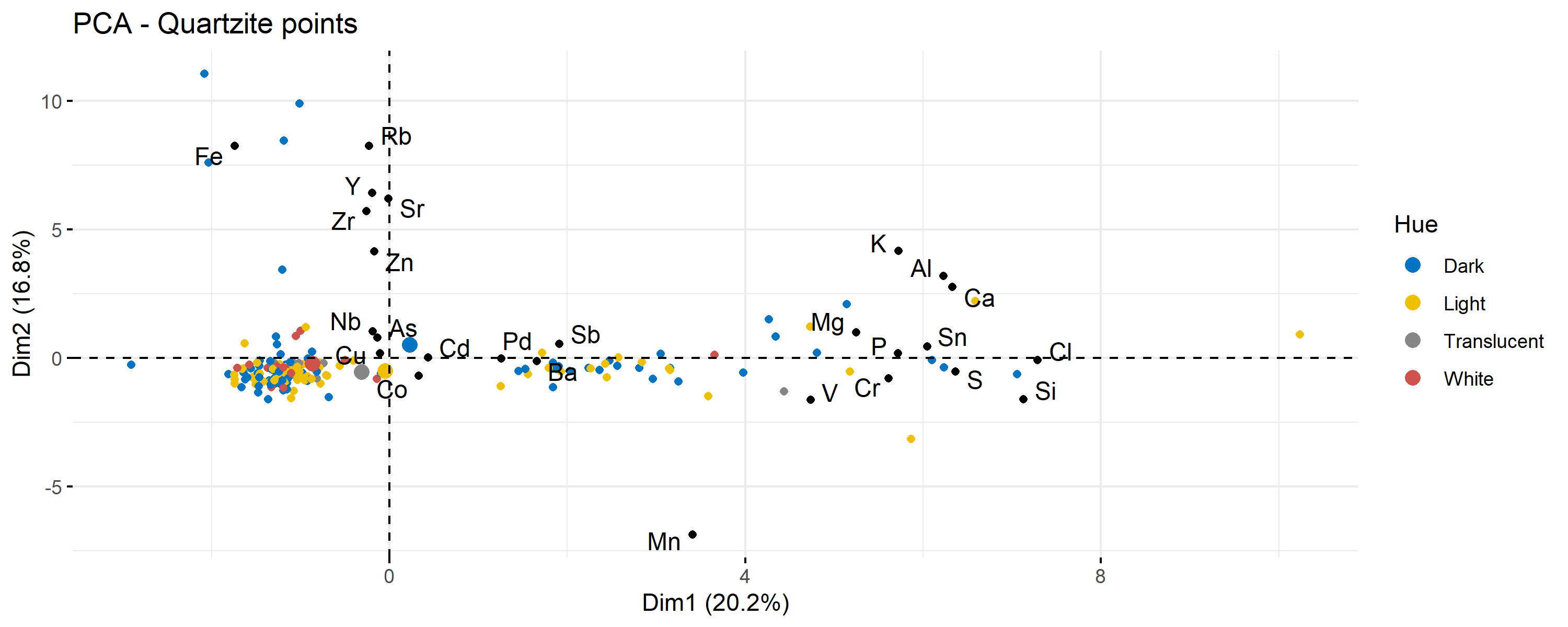


Figure 4.4: Biplot of PCA analysis with PC1 and PC2, no clear clustering can be seen related to the color of the material

# 5 Discussion

As quartzite is a metamorphic rock formed from quartz-rich sandstone it is not surprising to see that Si features a high contribution to PC 1.

# 6 Conclusion

# 7 Acknowledgements

# 8 References

### 8.0.1 Colophon

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#> Remote: main @ origin (https://github.com/MattiasSealander/MyTestProject)  
#> Head: [9b9be49] 2021-03-26: Added text to the manuscript and fixed a code error in the loading of the data