

The Stoichiometry of Mineral Compositions

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Previous work by John Aitchison (1999) showed how log-ratio compositional data analysis can illuminate the relationships between components of a composition based on mineral constituents, However, his analysis was framed in terms of weight based compositional, so it did not illustrate directly the stoichiometric relationships of the olivine minerals he investigated. We show how applying log-ratio compositional data analysis to the mole based composition illustrates the stoichiometric relationships directly by investigating olivines, alkali feldspars and plagioclases. This approach has the potential to provide much greater meaning to geochemists than one based on weight based compositions

References

Aitchison, J. (1999) Logratios and natural laws in compositional data analysis, *Mathematical Geology*, 31(5), 563-580.