



Global meaning of carbonatite occurrences

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Carbonatite magma is an extremely volatile component of the mantle capable to react and deeply modify Earth composition bringing light elements towards the surface. Among the 550 carbonatite occurrences so far known, extrusive carbonatites represent the less evolved and were erupted in a near primary state. Their eruptability guarantees they are purely magmatic and do not undergone to a substantial differentiation or late stage phenomena. Extrusive carbonatites are associated with mafic-ultramafic alkaline magmas and carbonates are a primary component of diamond bearings rocks. They cannot be confused with carbonate veins or marbles and have a distribution confined to intraplate plate setting and continental rifts. This rock association is the less voluminous of the magmas erupted to the surface and seems to be in contrast with sourcing of large volume basaltic rocks such as those involved in flood basalts and subduction. In spite of several repetitions, their association with old continental lithosphere is questioned by occurrence in some oceanic islands (i.e. Capo Verde). Therefore, they do not reflect asthenosphere/lithosphere processes but deeper phenomena whose evidence in more active tectonic setting could be covered by background geological noise.