



Appendix Fig. 1. Discrimination diagram in terms of the first discriminant function (DP1-1) vs. the second discriminant function (DP1-2), showing boundaries between apatites from carbonatites, various ore deposits, and rocks that are not associated with mineralization (discrimination step I; Table 5; App. Table 5). $DP-1 = -0.06461 \cdot \log Mn - 1.56 \cdot \log Sr + 2.609 \cdot \log Y + 0.3631 \cdot \log La - 1.766 \cdot \log Ce + 0.6243 \cdot \log Eu - 3.642 \cdot \log Dy + 0.7086 \cdot \log Yb - 1.178 \cdot \log Pb + 0.4161 \cdot \log Th + 0.963 \cdot \log U + 6.589$; $DP1-2 = 0.2073 \cdot \log Mn - 1.035 \cdot \log Sr + 15.1 \cdot \log Y + 4.995 \cdot \log La - 5.804 \cdot \log Ce + 0.1741 \cdot \log Eu - 8.771 \cdot \log Dy - 4.326 \cdot \log Yb + 2.022 \cdot \log Pb - 0.6719 \cdot \log Th + 0.02096 \cdot \log U - 10.45$; variables are log₁₀-equivalents of element concentrations in ppm.