LHITOCHEMICAL ANALYSIS OF VOLCANIC AND INTRUSIVE ROCKS FROM HARDY POINT, GREENWICH ISLAND, ANTARCTICA.

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The volcanic and intrusive rocks from Hardy Point, Greenwich generated during Late Mesozoic magmatic events, are cogenetic. The volcanic rocks are represented by basaltic andesite and andesite lavas and the intrusive rocks (dikes and little stocks) are of dioritic and granitic composition. The mineral chemistry in the volcanic rocks showed that the plagioclase phenocristal corresponds to bitownite-labradorite and the micas to poor aluminium biotites. The center of the plagioclases in the intrusive rocks is formed by labradorite-andesine and the rims by andesine-oligoclase. The clinopiroxenes (augite and diopside) show a slight compositional variation and the micas correspond to biotite. The negative La/Cr ratio suggests that the content of rare earth elements was controled by the clinopiroxenes fractionation.Geochemycal pattern also indicate that the volcanism at Hardy Point preceded the plutonism events. The rare earth element diagram confirms a more evolved character for the intrusive rocks than volcanic rocks. All the rocks showed a calc-alkaline affinity. All of them are markedly enriched with slight rare earths as compared to the heavy ones, probably related with a partial melting of the mantle, besides slight negative Eu anomalie (plagioclase fractionation). The light rare earth/heavy rare earth ratio increases from the volcanic to the intrusive rocks but the Eu/Sm ratio decreases.The spidergram shows a same pattern to both groups of rocks (intrusives and volcanics), with a high negative Ti, P e Nb anomalie as tipically occurs in island-arcs. The register of a positive Ce anomalie could indicate a probably marine sediment assimilation by the mantle.