

Petrology of the quaternary lavas of New-Hebrides Island arc.
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New mineralogical (microprobe) and chemical data have been obtained on the volcanic rocks from the Recent chain of the N.H. island arc assumed to be in an oceanic context. The lavas are mostly basalts belonging to the island arc tholeiitic series; more evolved terms (andesites, rhyodacites) are less abundant. Previously reported alkaline basalts are not present. The magmatic evolution is mainly controlled by fractional crystallization (under variable f_{O_2} and P_{H_2O} conditions) locally combined with, at times obliterated by important crystal settling ($O_1 \pm Cpx \pm Pl$).

Differentiation under high f_{O_2} and P_{H_2O} leads to rocks which display some calc-alkaline affinities (amphibole phenocrysts, early Fe-Ti oxides fractionation ..) Furthermore, selective enrichment in some lithophile elements (mainly K) can occur at every stage of the magmatic evolution. An attempt to correlate these mineralogical and chemical variations within the structural frame work of the island arc is made.

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Petrographic and chemical characteristics of tholeiitic intrusions associated with the Parana basalts

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5 chemical analyses together with a petrographic study of 40 specimens taken at 2 m. intervals in a bore hole drilled in a 68 m. thick cretaceous diabase sill, strengthen a previous idea that the Parana tholeiites were slightly differentiated (in the basalt-rhyolite trend) at the time of intrusion and eruption.

No strong evidence for an "in situ" differentiation was detected. However, the plot of micrometric analyses shows an almost imperceptible downward increase of total mafics, antipathetic with a somewhat more conspicuous upward increase of leucocratic mesostasis, both facts pointing toward an embryonic process of differentiation by crystal settling.

This line of investigation is now being conducted on two other thicker sills but the results are, up to now, similar.