MAFIC DYKES OF SALVADOR (STATE OF BAHIA, BRAZIL): GEOLOGICAL AND PETROLOGICAL CHARACTERISTICS

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The mafic dykes of the Salvador region (Bahia State) occur along the eastern border of the São Francisco craton (Fig 1). They crosscut the Precambrian crystalline basement characterized by granulites, charnockites and enderbites.

Two main groups of dykes may be distinguished. The first group is represented by metamorphosed dykes which preferentially trend E-W, while the second group comprises unmetamorphosed dykes with a prevailing N-S trend (Fig 2). Sometimes the metamorphosed dykes are truncated by the unmetamorphosed ones. The first group of dykes is older than 1.5 Ga (K/Ar age; see MASCARENHAS et al., 1986), while the unmetamorphosed dykes are 1.0 Ga old ($^{40}Ar/^{39}Ar$ age; D´AGRELLA FILHO et al., 1989).

The metamorphosed E-W dykes are subvertical, 1-3 m thick, quite deformed and sometimes appear as "boudins". They are composed of andesine plagioclase, hornblende, biotite and opaques. Rare plagioclase relicts may be found. The unmetamorphosed N-S dykes are subvertical to vertical and 5 cm to 57 m thick. They are made up of labradorite plagioclase, augite, opaques and scarce pigeonite and Fe-olivine. Important textural variations (from hyaline to porphyritic to granular) are observed in the thickest dykes.

The metamorphosed dykes mainly correspond to latite and lati-andesite rock types, while the unmetamorphosed dykes essentially plot in the fields of tholeiitic, transitional, lati- and andesi-basalts (De La ROCHE et al., 1980; Fig. 3). In the AFM diagram the metamorphosed dykes plot in the calc-alkaline field, while the unmetamorphosed ones fall in the tholeiitic field (IRVINE & BARAGAR, 1971: Fig. 4). A preliminary evaluation of major and trace element variations suggests different primary melts and source materials for the two groups of dykes.

In general, the available data (a detailed study is in progress) indicate that the

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eastern border of the São Francisco craton was the site of two important magmatic phases. The first phase would correspond to the Transamazônico cycle (2.2-1 8 Ga), and the second phase would belong to the final stages of evolution of the Espinhaço region (1.7-1.0 Ga).

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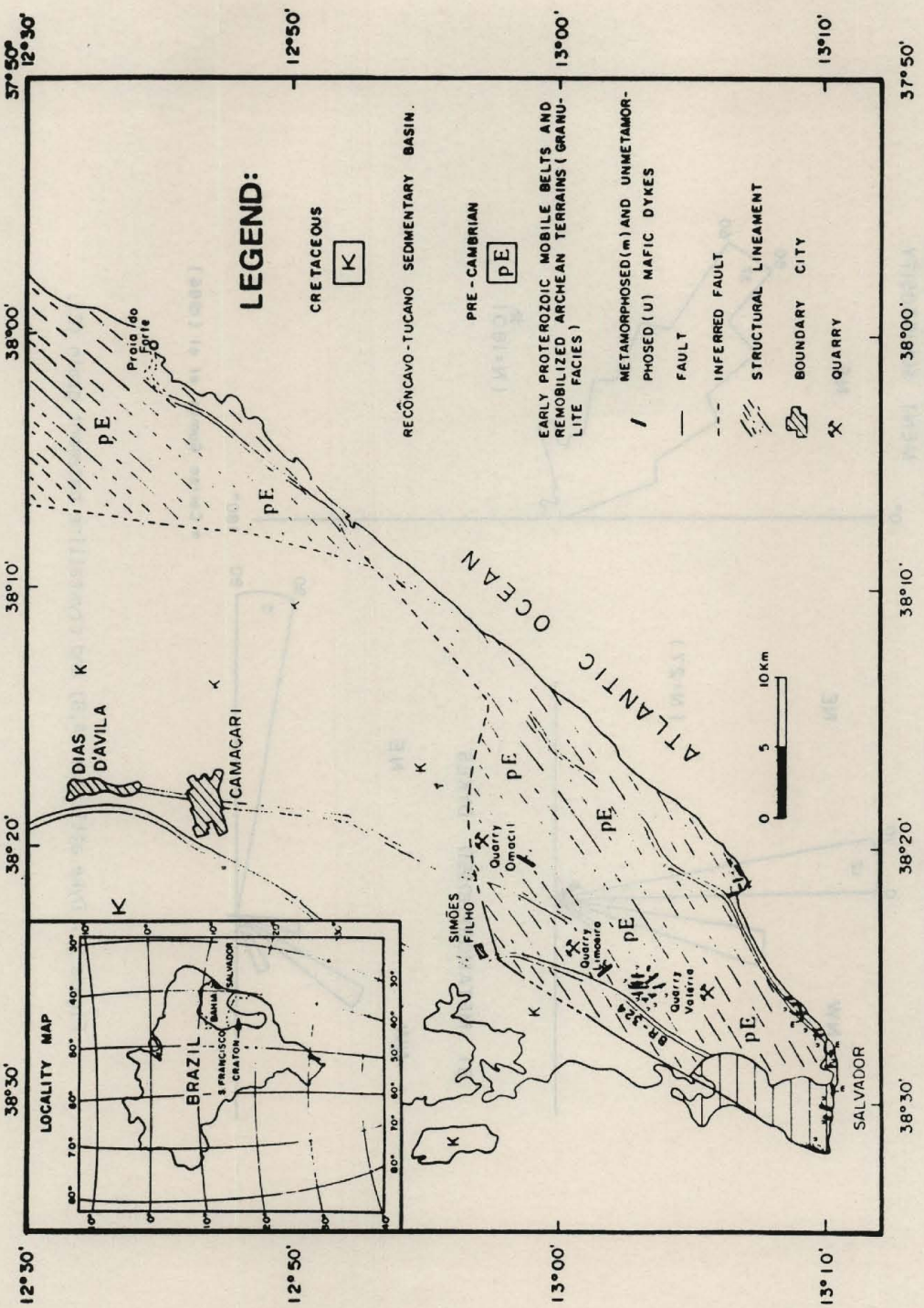

Figure 1 - Geologic and geotectonic sketch map, modified from MASCARENHAS et al. (1986) and MARTIN et al. (1980).

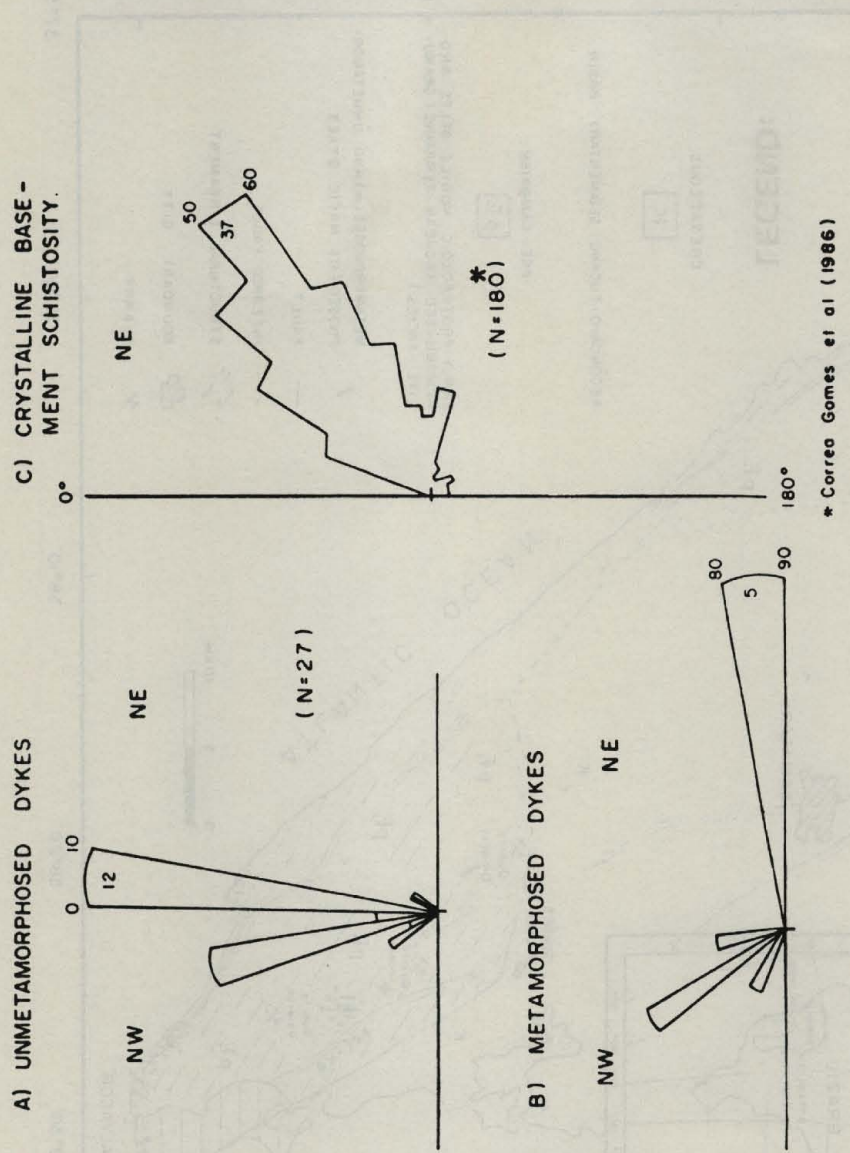

Figure 2 - Dyke attitudes (A,B) and crystalline basement grain (C).

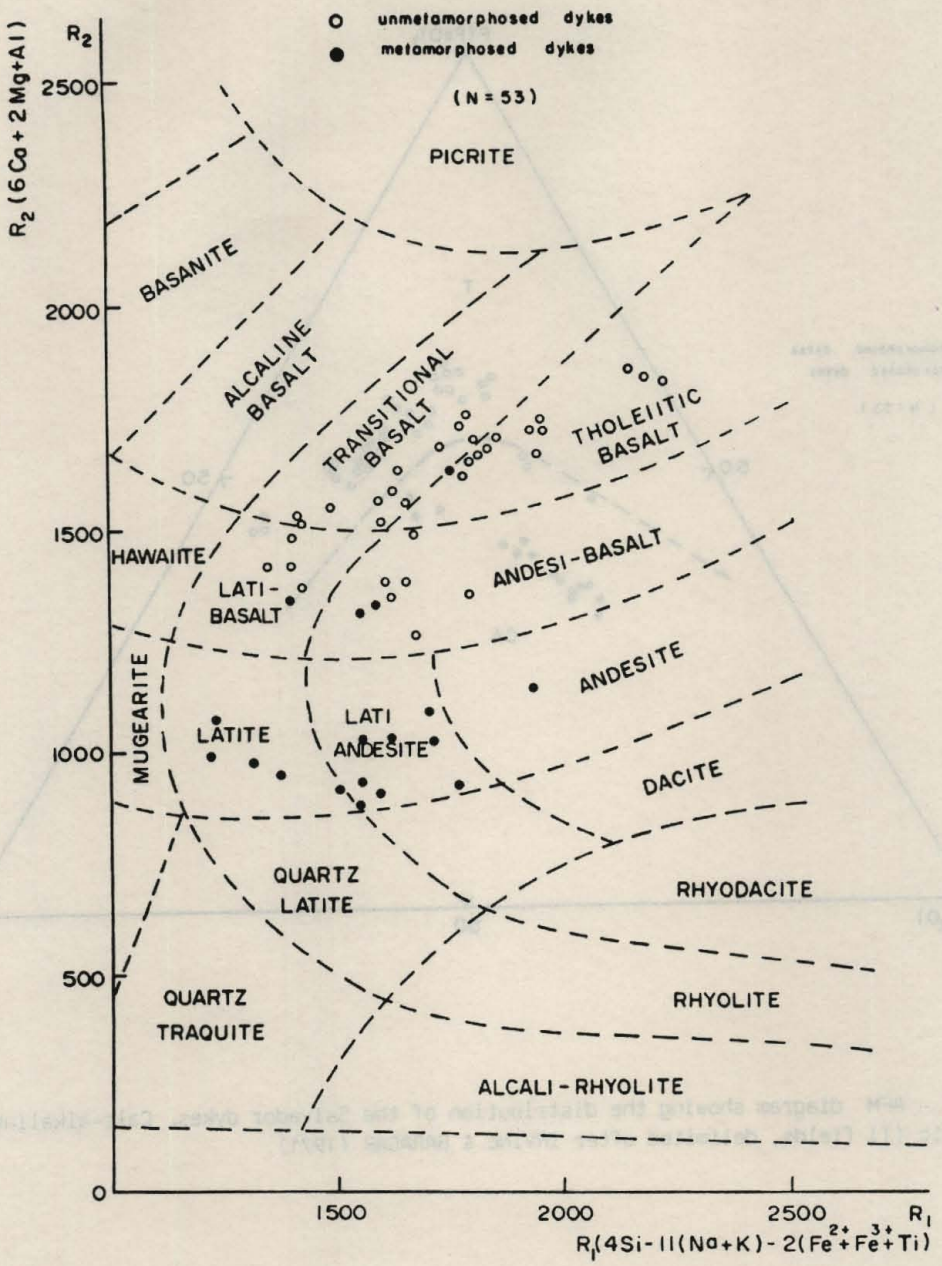

Figure 3 - Data from the Salvador dykes plotted on the diagram of De La ROCHE et al. (1980) as modified by BELLIENI et al (1981).

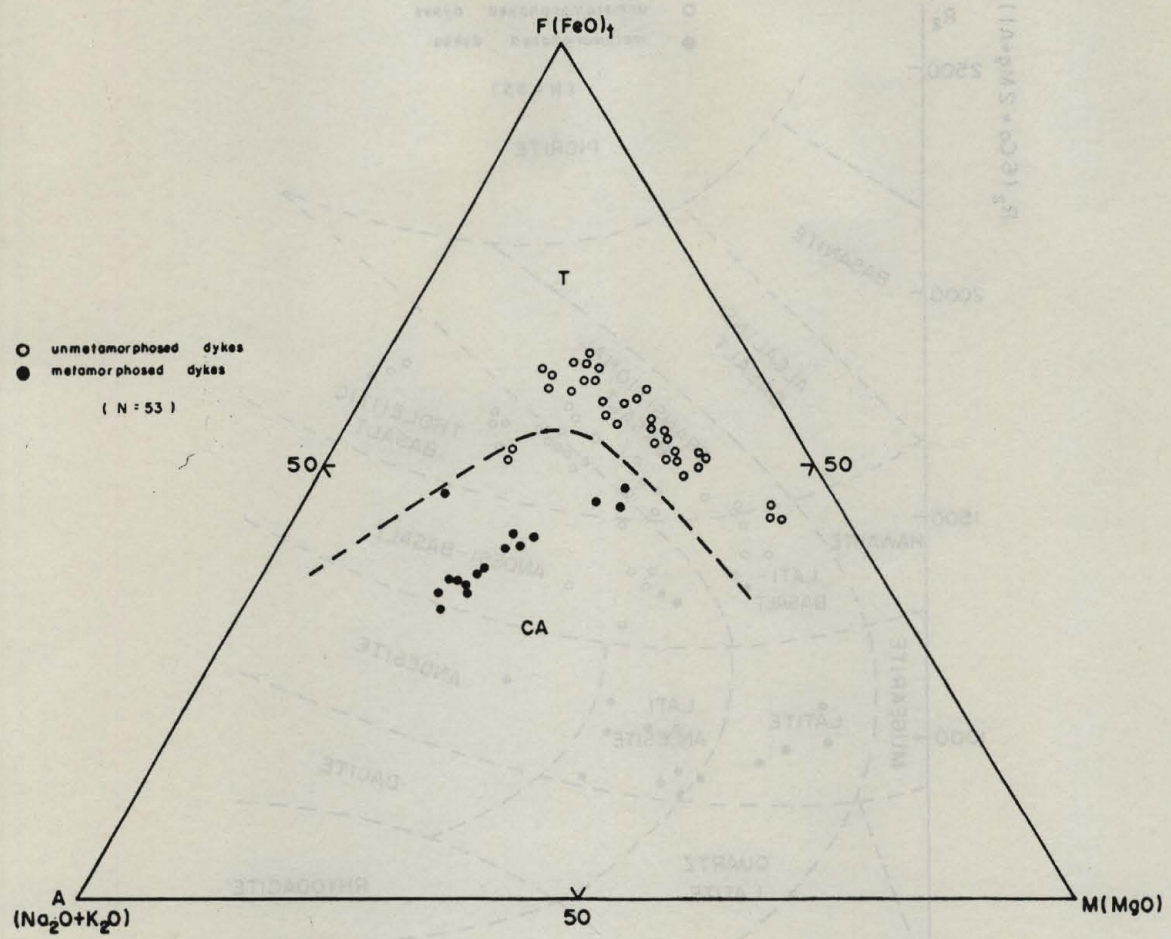

Figure 4 - AFM diagram showing the distribution of the Salvador dykes. Calc-alkaline (CA) and tholeiitic (T) fields, delimited after IRVINE & BARAGAR (1971).