Petrology and geochemistry of the upper miocene volcanics on the western part of Barisan Mountain ranges, Lubuk Sikaping Region, West Sumatra

Harahap, B.H., author

Abstrak

Andesitic and basaltic lavas are the main product of the upper Miocene volcanic activities in Lubuk Sikaping region. They posses vesicular and amygdales structure, dark grey to black in colour, highly porphyritic in texture composed of plagioclase, clinopyroxene, orthopyroxene, olivine (in basalt only) and minor hornblende, magnetite and ilmenite. They (basalt and andesite) mostly fall within the calc-alkaline series on the AFM. The basalt and andesite are not primary magma since they have low Mg# and Ni contents. The lavas resemble the typical of arc setting with Nb through on the spider-diagram patterns, enrichment in large ion lithophile elements and light rare earth elements relative to high field strength elements and heavy rare earth element. They are co-magmatic as shown by the REE pattern. The lavas have high concentration of Ba, Sr, La, Rb and Ce, Zr, Th and U, and high Ba/La ratio which indicating an involvement subducted sediment in their generation. The lava from Lubuk Sikaping is product of Maninjau Crater eruption in Upper Miocene. This lava was uplifted and exposed on high level topography for a few million years, and then superimposed by a high-K calcalkaline volcanic of mainly rhyolitic tuff as a result of the reactivation of the Maninjau Crater in Pleistocene.