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Petrology of the volcanic/subvolcanic members of the volcano-sedimentary Maden Complex in Eastern Turkey

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Maden Complex exposed in Eastern Turkey, is a succession of volcano-sedimentary rocks and tectonically overlain by Bitlis Metamorphics and Cretaceous ophiolitic rocks. The succession includes shallow-water deposits and deep marine pelagic sediments intercalated with pillow lavas ranging from a few centimeters to ten meters in diameter. The planktonic foraminiferal assemblages from micritic limestones and zircon U-Pb ages from selected sedimentary rocks indicate the age of Late Ypresian - Early Lutetian. Plagioclase and clinopyroxenes are the main mineral phases, olivine rarely found as altered phenocrysts. Clinopyroxenes are augite and diopside, and their compositions are ranging between Wo_{44-51} , En_{27-43} , Fe_{10-21} . The anorthite contents of plagioclases are between 32- 67 % in unaltered grains. The crystallization temperatures and pressures obtained from clinopyroxene chemistry are ranging from 1126 to 1250°C and 3 to 8 Kbar, respectively. The majority of the volcanic/subvolcanic rocks are subalkaline-tholeiitic basalts however; a few andesitic and rhyolitic derivatives are also present. The whole - rock and Sr-Nd-Pb isotope compositions reveal that the basaltic rocks are originated from E-MORB like asthenospheric mantle source without a subduction component.