Oaş-Gutâi Mts. represent the north-western segment of the Romanian Carpathians Neogene-Quaternary volcanic chain. An intermediate arc-type volcanism developed during Middle-Miocene in the area, comprising of typical CA series of rocks ranging from basalts to rhyolites (the andesitic rocks being the prevalent ones). Volcanic structures related to a monogenetic volcanic activity have been identified in the entire volcanic zone. In Oaş Mts., a dominantly monogenetic and mainly submarine volcanism (extrusive domes, dome-coulees, cryptodomes) developed during a short time interval (11.0-9.5 Ma). Most of these andesitic/dacitic volcanic structures are isolated being surrounded by Neogene - Quaternary sedimentary deposits. Monogenetic volcanic structures are much subordinated in Gutâi Mts., where, dacitic and andesitic extrusive domes grew up in connection with the large-volume polygenetic volcanic activity developed during a longer time interval (13.4-7.0 Ma). Massive and coherent, sometimes with columnar jointings or flow-band ing textured lavas coexist with blocky lavas or blocky crumble breccias representing the dome-envelopes, usually mapped at the periphery of the actual morphology of the extrusive domes. Hyaloclastites developed extensively in the area by quench fragmentation of lavas emplaced subaqueously; hyaloclastic deposits are usually passing to resedimented hyaloclastites (from coarse debris flows to fine epiclastic deposits). Phreatomagmatic deposits form medium to fine grained, small-volume deposits. Subaerial talus breccias as well as pyroclastic block and ash flow deposits are much subordinate. Dome growth and collapse associated with fragmental processes whether explosive or non-explosive seem to be dominantly responsible for most of the volcanic products. Subsequent repeated resedimentation developed coeval with the volcanism.