

CENOZOIC BASALTS AND THEIR RELATION TO RIFTING IN THE VALLEY OF LAKES, CENTRAL MONGOLIA

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Cenozoic, partly also Mesozoic, basaltic volcanism is concentrated in a relatively small approximately S-N striking corridor in Central Mongolia between 98° and 104°E. It extends from China up to Siberia. The Valley of Lakes basin is positioned within this corridor. We distinguished three coherent basaltic layers: Basalt I erupted between 31 and 32 Ma. Mineralogically the basalt consists of a dense groundmass and microphenocrysts of zoned Fo-rich olivine, diopsidic clinopyroxene and various feldspars. Basalt II is restricted to the very north and northwest of the mapped area and shows an age of 27 - 28 Ma. Mineralogically it is identical with basalt I. Both can be classified as basalts, trachybasalts and some even as tephrite/basanite. In their trace element distribution they show typical intraplate patterns. Basalt III is also found mainly in the north with an age of around 13 Ma. This flow is mineralogically and geochemically different from the former. It can be classified as (basaltic) trachyandesite. The trace element distribution is also compatible with an intraplate environment. Geochemically the basalts resemble OIBs with high Nb/U ratios for basalts I and II. Basalt III has a significantly lower Nb/U ratio indicating some contribution by the continental crust. The eruption centers of basalt I and II are closely associated with the Del fault, those for basalt III possibly with the Bayan Hongor fault. Both faults, active in the Tertiary, are subparallel to the recently active Ikh Bogd fault towards the south and demonstrate the longlasting rifting process in the Valley of Lakes.