

WATER CIRCULATION OF BARUUN BAYAN RIVER BASIN, IN THE KHENTII MOUNTAIN, MONGOLIA

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Baruun- Bayan drainage basin (450 km²) is located in the middle part of the Khentei Mts, ca. 200 km east of Ulan Bator. The extreme continental climate, permafrost and modification of natural environment due to sheep overgrazing are the fundamental factors affecting water circulation. During the expedition the following parameters were recorded water discharges, rates of infiltration into soil covers and water mineralization. Based on the hydrological data collected in the Terelj drainage basin, regime of rivers in Khentei Mts can be determined as extremely variable, pluvial – groundwater runoff pattern with an inactive period lasting four months (lack of runoff due to frozen substratum). In the case of Baruun – Bayan drainage basin, areas above the present forest limit play a particular role in transformation of precipitation into runoff. The areas mentioned above are block fields (felesenmeers) without vegetation cover where even small precipitation results in generation of surface flow. Similar conditions are also characteristic of over saturated valley bottoms. In the middle part of the valley, in the inter-mountain basins water “escapes” from a river channel. Water is stored in peat-mineralized deposits and only part of it-of the order of 1/3 – returns to the channel as the subsurface flow. Water mainly evaporates. The basin is functioning as a storage reservoir contributing to a less variable flow pattern. Based on the analysis of maps it is possible to state that such situations are typical of the Khentei Mts.

Rates of water infiltration into various kinds of covers are as follows: over 25 mm/min in forest, ca.5 mm/min in and forest in which animals are pastured, 2 mm/min on the woodless slopes and below 1 mm/min in the valley bottoms. Mineralization of surface waters is generally low. In the case of water draining the main water divide that is 18-25 mg/l, perennial streams 40-50 mg/l and seasonal streams 100-150 mg/l. Mineralization of ground water is high and reaches 150-260 mg/l. A complicated spatial pattern of runoff and of mineralization cause the denudation process to occur with the same rate in the whole drainage basin.