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Run-off regime of the small rivers in mountain landscapes (on an example of the mountain “Mongun-taiga”)

G. Pryahina (1), E. Zelepukina (2), and N. Guzel (3)

(1) dep. Hydrology, Saint-Petersburg State University, Russian Federation (g65@mail.ru), (2) dep. Physical Geography, Saint-Petersburg State University, Russian Federation (geografff@gmail.com), (3) dep. Physical Geography, Saint-Petersburg State University, Russian Federation (guzel_nataly@mail.ru)

Hydrological characteristics calculations of the small mountain rivers in the basins with glaciers frequently cause complexity in connection with absence of standard hydrological supervision within remote mountain territories. The unique way of the actual information reception on a water mode of such rivers is field work. The rivers of the mountain Mongun-taiga located on a joint of Altai and Sayan mountains became hydrological researches objects of Russian geographical society complex expeditions in 2010-2011. The Mongun-taiga cluster of international biosphere reserve "Ubsunurskaya hollow" causes heightened interest of researchers — geographers for many years.

The original landscape map in scale 1:100000 has been made, hydrological supervision on the rivers East Mugur and ugur, belonging inland basin of Internal Asia are lead.
Supervision over the river drain East Mugur runoff were spent in profile of glacier tongue (the freezing area - 22 % (3.2 km2) from the reception basin) and in the closing alignment of the river located on distance of 3,4 km below tongue of glacier.

During researches following results have been received. During the ablation period diurnal fluctuations with a strongly shown maximum and minimum of water discharges are typically for the small rivers with considerable share of a glacial food. The run-off maximum from the glacier takes place from 2 to 7 p.m., the run-off minimum is observed early in the morning. High speed of thawed snow running-off from glacier tongue and rather small volume of dynamic stocks water on an ice surface lead to growth of water discharge. In the bottom profile the time of maximum and minimum of water discharge is displaced on the average 2 hours, it depends of the water travel time.
Maximum glacial run-off discharge (1.12 m3/s) in the upper profile was registered on July 16 (it was not rain). Volumes of daily runoff in the upper and bottom profiles were 60700-67600 m3 that day.
The run-off from nonglacial part of the basin is formed by underground waters and melting snowfields, during the absence of rainfall period the part of one amounted to 10% of the run-off in the lower profile.
We suggest that this water discharge corresponds to base flow value in the lower profile because the area of snowfields of the basin was < 0.1 km2 that year.

Run-off monitoring has showed that rivers with a small glacial food are characterized by absence of diurnal balance of runoff. During rainfall the water content of river has being increased due to substantial derivation of basin and, as a result, fast flowing rain water into bed of river. The sharp decrease in water content of river during periods of rainfall absence indicates low inventory of soil and groundwater and the low rate of glacial. Thus, glaciers and character of the relief influence the formation of run-off small mountain rivers.

Results of researches will be used for mathematical modeling mountain rivers run-off.