Kolyma Water Balance Station (KWBS)

Kontaktovy basin, Russia

**Basin characteristics**

River Basin / River Basin Operation (from... to...)
Since 1948, still in operation
Gauge coordinates:
61°54' N; 147°25' E/1070 m a.m.s.l.
Catchment area:
21.2 km²
Elevation range:
800 – 1700 m
Basin type:
Mountainous
Climatic parameters:
405 mm; -13.1°C (1948-1992)
Land use:
31% Barren Alpine tundra (Talus), 27% cedar and alder woods, 14% larch open woods, 11% open terrain and sloping woods
Soils:
Stony-rock debris, clayey podzol
Geology:
Shale, granite, diorite
Hydrogeology:
Fractured rock, ground water outflow from deep aquifer in not frozen channel area ("talik")
Water discharges:
Qₘᵦ = 0 l/s, Qₘᵦ = 7610 l/s, Qₑᵦₜₐᵦₑ = 195 l/s (1974 – 1984)

**Map of the research basin**

**Typical hydrographs (Kontaktovy creek, 21.2 km²)**

**Special basin characteristics – continuous permafrost**

The permafrost thickness over Kontaktovy Creek basin area ranges from 120-210 m in the valleys to 300-400 m in the hills. Maximum depth of the seasonal soil thawing is 30-40 cm in the shaded slopes (Yuzhny Creek) and 1.5-2 m in the light slopes (Severny Creek). It influences on the landscape types formation and changes of maximum rain peak floods runoff coefficients during the warm period.

**Variations of maximum peak flood rates in Severny (shade slope, 1) and Yuzhny (light slope, 2) creeks**

**Instrumentation and data**

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**Applied model**

1. The model “Hydrograph” (in process)

**Main scientific results**

1. Regional equation for the rain peak flood discharges computation. This equation takes into account effective rain depth and intensity, density of working drainage network.
2. Transient moisture that forms during the autumn period as subsurface storage of ice (in rock glaciers and talus slopes) provides additional runoff recharge reaching 120-130 mm from areas occupied by these landscape types.
3. Evaporation (E) from surfaces covered by reindeer moss and talus depends on water availability 5 mm, number of rain events (N) and moss holding capacity. It may be computed using relationship E=5N. Evapotranspiration from sphenic can be twice greater compared to evaporation from water surface.
4. Maximum rain peak flood coefficients depends on depth of seasonal thawing soil layer and changes within 0.86 - 0.98 range for shaded slopes and 0.77-0.95 for illuminated slopes.

**Key references for the basin**


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