



The Kolyma water-balance station: the history of a research watershed in a mountainous permafrost environment from 1947 to 2017

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In 2017 we celebrate 70 years since work on organizing the Kolyma Water-Balance station (KWBS) began. This hydrological and permafrost research catchment has accumulated standard and experimental data unique both in terms of their amount and duration. It includes 50 years of continuous daily meteorological and streamflow data for main meteorological plot and runoff gauge of KWBS and daily data of shorter periods for another two meteorological sites and 9 runoff gauges (Makarieva et al., 2017). The dataset is important because it characterizes the natural settings, which, on the one hand, are nearly ungauged, and on the other hand, are representative for the vast mountainous territory of Eastern Siberia and North-East Russia.

The Kolyma water balance station (KWBS) was established on October 15, 1947 and was initially known as the Itrikanskaya runoff station of the Dalstroy (Far North Construction Trust organized in 1931) Hydrometeorological Service. At the end of the 1940s and early 1950s, technical staff of the station were mainly former convicts. During the first few years, the workers of the station built houses for themselves, collected firewood and organized the household. The working day lasted till 10 or 11 p.m. Since there was no electricity, they used kerosene lamps filled with a mixture of petrol and salt. In summer 1956 there were only 13 people left at the station, some of them were taken to help with haymaking to prepare hay for their subsidiary holding that consisted of two cows and a horse.

In 1957 the station was handed over to the jurisdiction of the Kolyma Hydro-meteorological service administration, and in 1958 it was partially connected to electricity. At that time there were active steps taken toward fitting out the station with new types of devices and equipment, engaging new specialists in hydro-meteorology. In 1976 the station hosted a delegation of USA scientists. They highly praised the professional and personal qualities of the station's staff members. According to Slaughter and Bilello (1977), the data recorded at the KWBS, were unique and unprecedented for world practice.

In 1997, the station was terminated, thereby leaving Russia without operating research watersheds in the permafrost zone. Nowadays, the resumption of continuous observations and research at the Kolyma station appears to be a critical task due to increased interest in the natural processes of the Arctic region. Present-day data, following the KWBS long-term observations series, could become a valuable indicator of climate change and a basis for studying its impact on the state of the permafrost and its associated hydrological regime. The report will have the outlines the prospects for future of the station, where the KWBS could be restored to the status of a scientific research watershed and become a valuable international center for hydrological research in permafrost.

Makarieva, O., Nesterova, N., Lebedeva, L., Sushansky, S.: Water-balance and hydrology research in a mountainous permafrost watershed in upland streams of the Kolyma River, Russia: database from the Kolyma Water-Balance Station, 1948–1997, *Earth Syst. Sci. Data Discuss.*, <https://doi.org/10.5194/essd-2017-125>, in review, 2017