DOI: https://doi.org/10.37162/2618-9631-2025-2-85-104

Studying the composition of the snow cover in different geomorphological zones in the Caucasus region / Agoeva E.A., Lamashvili L.S., Kumykov R.M. // Hydrometeorological research and forecasts. 2025, no. 2 (396), pp. 85-104.

The composition of the snow cover in different geomorphological zones of the Kabardino-Balkarian Republic (KBR) characterized as zones of background and impact effects is studied. The spatial distribution of component concentrations was analyzed, and the resulting data were compared with regulatory and technical documents regulating hygienic requirements. The studies showed that the snow cover in accordance with the classification of O.A. Alekin belongs to the following types: sodium bicarbonate type I, calcium bicarbonate, and ammonium bicarbonate. The total hardness characterizes the snowmelt water as soft. The agrochemical calculated parameters – the sodium adsorption coefficient (SAR) and the Stebler irrigation coefficient – characterized the samples as the ones having a low risk of soil salinization and good for irrigation applications. It was revealed that the high-altitude and mountainous territories are background ones, for which the determining factor in the formation of the snow cover composition is the long-range and regional transfer of soluble forms of components. The predominant influence on the snow cover chemistry in the background high-altitude and mountainous territories is exerted by the transboundary transport of sea salts through the Main Caucasian Ridge. The chemistry of the snow cover of the lowland zones of the KBR is associated with local pollution, mainly with poorly soluble compounds.

Keywords: Caucasus, Upper Balkar and Cherek gorges, snow cover, chemical composition, geomorphological zones

Tab. 4. Fig. 4. Ref. 32.