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ASSESSMENT OF THE THERMAL REGIME OF RIVERS FLOWING
INTO LAKE SEVAN UNDER GLOBAL CLIMATE CHANGE

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Climate change is altering the thermal regimes of mountain rivers, making long-term monitoring essential for understanding their hydrological responses to warming. This study evaluates long-term changes in the thermal regime of rivers flowing into Lake Sevan using water temperature records from 12 hydrological monitoring stations operated by the Hydrometeorology and Monitoring Center of the Ministry of Environment of the Republic of Armenia. Spatial and temporal patterns of river water temperature were analysed to characterize thermal variability across the basin and to assess long-term changes under climate change conditions. The results show that maximum water temperatures occur in July–August, whereas minimum values are recorded in January–February. Absolute maximum water temperatures range from 15.6°C to 29.4°C. River water temperatures exhibit marked spatial variability, with seasonal thermal regimes strongly influenced by altitude and river feeding conditions. During the warm season, water temperatures generally decrease with increasing altitude, while the duration of the warm period varies according to elevation and river feeding conditions. Long-term analyses reveal significant increases in both annual and winter water temperatures, accompanied by a progressive reduction in the duration of ice phenomena. These findings provide robust observational evidence of the impacts of ongoing climate change on the thermal and ice regimes of rivers in the Lake Sevan basin and establish an important scientific baseline for future hydrological assessments and climate change impact studies in high-mountain river systems.

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