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Monitoring of optical properties of deep waters of Lake Baikal in 2024

We present the results of year-long monitoring of inherent optical properties of deep waters of lake Baikal in the wavelength range of 400–620 nm within the effective volume of the deep underwater neutrino telescope Baikal-GVD in 2024. The measurements were performed using a dedicated device, «BAIKAL-5D» №2, at a depth of 1180 m. Measurements of the absorption spectrum, scattering length at three different wavelengths (405 nm, 460 nm, and 532 nm) and small-angle dependence of the scattering function were carried out weekly. The results of measurements of the integral characteristics of the scattering function during the 2024 winter expedition are also presented. Data on the angular and integral scattering characteristics made it possible to calculate corrections to compensate for the instrumental error in measuring the absorption and scattering coefficients. The data obtained make it possible to estimate the range of changes in the absorption and scattering lengths over a sufficiently long period of time and to investigate the relationship between the processes of changes in absorption and scattering.

Collaboration(s)

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