Abstract

Global climate change has a positive effect on the melioration and agroecological condition of the irrigated lands of the Republic of Uzbekistan. As a result of the occurrence of secondary salinization in agricultural fields following the climate and soil conditions of the region, it is observed that they are partially or completely out of use, and many irrigated lands lose their function of planting agricultural crops. One of the main factors behind such negative changes is the lack of digital hydromodular zoning (HMZ) maps, which are used to determine irrigation regimes for agricultural crops. In this research, based on GIS technologies, the irrigated agricultural lands in the regions of the Amudarya river basin are the Republic of Karakalpakstan, Khorezm, Bukhara, Navoi, Kashkadarya, and Surkhandarya regions, creating a geodatabase of monitoring wells installed for monitoring the dynamics of groundwater levels and mechanical composition of soils the hydromodular zoning map creation method has been improved. The IDW interpolation algorithm and raster calculator functions of ArcGIS were used in the analysis of the obtained data. As a result, the areas of irrigated land in the regions of the Amudarya river basin were determined overall IX hydromodular zones and electronic maps were developed by the regions. Based on the study, 7.2 % of the irrigated land in the regions of the Amudarya river basin belongs to I, 9.1 % to II, 6.3 % to III, 13.3 % to IV, 7.2 % to V, 8.3 % to VI, 17.1 % to VII, 16.4 % to VIII and 15.1 % to IX were found.