

**THE TEMPERATURE OF WATER SOURCES IN THE IRRIGATION OF
AUTUMN PHASE CROP FIELDS AND ECOLOGICAL SAFETY
DEPENDING ON THE PLANT**

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Annotation. In the Bukhara oasis, the use of low-mineral groundwater sources for irrigation and the use of water-saving irrigation methods for winter cereals have resulted in positive changes in the growth and development of grain in the case of seasonal irrigation with 50 kg of hydrogel crystals per hectare. 4000 m³ / ha.

Keywords: irrigation sources; groundwater; temperature; water consumption mode.

GROUNDWATER is a liquid, solid (ice), vaporized water located in the porous cavities of the rock layers in the upper part of the earth's crust. Groundwater is part of the total water resources and is of great importance for the national economy as a source of water supply and irrigation. The reclamation condition of irrigated lands is determined by the condition of groundwater.

Groundwater is studied by hydrogeology. Water can be in a gravitational or free state that is bound by molecular forces and moves under the influence of gravity or



pressure difference. Layers of rock that are saturated with unconnected water are called aquifers, and they form aqueous complexes.

Groundwater is divided into porous (soft rocks), narrow (vein) - hard rocks and karst (cracked) (cracked-karst-lightly soluble carbonate and gypsum rocks) depending on the nature of accumulation in water-retaining rocks. Depending on the location, groundwater is groundwater (see Soil water regime), seasonal water (surface water; formed by precipitation or absorption of irrigation water on the aquifers in the aeration zone),

groundwater is divided into water (collected on the first waterproof layer closest to the surface) and interlayer (non-pressurized, pressurized, artesian, aquifers located between waterproof layers).

According to its origin, groundwater is an infiltration formed as a result of the absorption of atmospheric precipitation, river and irrigation water; condensation formed by the condensation of water vapor in rock layers; sedimentary rocks are subdivided into sedimentary and magmatic cooling waters, which are formed as a result of the immersion of seawater in the process of formation, or when washed away from the earth's mantle. The natural outflow of groundwater to the surface is called a spring, and is divided into flowing and boiling (hot spring).

Groundwater is a natural solution that contains almost all known chemical elements. In terms of mineralization (total amount of solutes in water, g / l), groundwater is fresh (up to 1.0), saline (1.0-10.0), saline (10.0-50.0) and saline (from 50). many) types. In terms of temperature, it is cold (up to 4 °), cold (4-20 °), warm (20-37 °), hot (37-42 °), hot (42-100 °) and very hot (above 100 °). Divided into groundwater. Infiltrative water is common in nature, the rest is very rare in its pure form. Groundwater is used in water supply of the population, industry and pastures, irrigation of lands, medicine (mineral waters), heat supply (hot water), extraction of various salts and chemical elements (iodine, boron, bromine, etc.). Groundwater causes swamps and salinization of soils. To combat this, open and closed horizontal drains and boreholes are drilled. Groundwater is widely used in deserts. Karakum, Kyzylkum and Ustyurt pastures are mainly supplied with groundwater. More than 150 large groundwater deposits have been identified in Central Asia. Their annual renewable operational reserves are more than 1,500 m / s, the share of fresh water is about 1,000 m / s, and the rest is mineralized at different levels (2-3 to 15 g / l).



There are more than 40,000 used boreholes in Central Asia, of which about 5,000 are artesian wells; many of them are used to irrigate crops (see Artesian waters).

After the independence of the Republic of Uzbekistan, our country has undergone rapid changes in all areas and achieved a number of achievements. Also, the rapid development of the agricultural sector, in turn, will lead to an increase in the consumption of water resources. Radical innovations have been introduced in the implementation of a unified policy in the field of water resources management, as well as in the field of rational use and protection of water resources, prevention and elimination of harmful effects of water. Consistent and sustainable development of agriculture is to ensure the food security of the country. Development of the concept of water development in 2020-2030 Water saving through the implementation of promising projects in the field of water management, foreign investment, active assistance to agricultural producers in the introduction of water-saving irrigation technologies, expansion of production capacity of modern irrigation systems by attracting private investment the share of irrigated lands using technologies is to bring irrigated lands to at least 10 percent of the total area. Relevance of scientific research:

If we take the total volume of water on Earth as 100 percent, it is 97.5 percent saline, while freshwater is 2.5 percent. Groundwater sources are one of the most inexpensive and convenient sources when close to an irrigation area. That is why it is widely used in foreign countries. In particular, 40% of irrigated land in the United States is irrigated from groundwater, 33% in the People's Republic of China and 5-6% in Uzbekistan. To date, the available and limited water resources in the region have been fully distributed and developed between countries. Under the current circumstances, the growing demand for water in the region can be met mainly through the rational use of available water resources and the discovery of internal reserves of water resources. Therefore, the development of water-saving technologies is also receiving great attention by scientists. In addition to groundwater resources, surface water is also used to irrigate and water pastures. Currently, 7% of the total groundwater resources are used. It is mainly used in Crimea, Moldova, Ukraine, the Volga region, Kazakhstan, Kyrgyzstan, Turkmenistan, Armenia, Georgia, Azerbaijan, USA, India, Algeria, Italy and other countries. When groundwater is used, its dynamic reserve is used, otherwise it is lost. The advantages of using groundwater are:



- 1). Proximity to the irrigation area and shortness of the salt part of the main canal.
- 2) Decrease in groundwater level in the irrigated area.
- 1) High FIK of canals due to low water wastage, canal length.
- 2) No mudslides in the canals as the water is not turbid.
- 3) Low risk of salinization and swamping.

Disadvantages:

- 1) Deep waters and lack of reserves in some places.
- 2) Mineralization may be high.
- 3) The temperature is low.
- 4) Conditions for frequent mechanical lifting of water.
- 5) Lack of useful gel and other particles in water.
- 6) The need for multiple wells.
- 7) High operating costs.

Groundwater is used for irrigation as follows: through springs, through mine wells, through a water collection gallery.

Lake Sarez

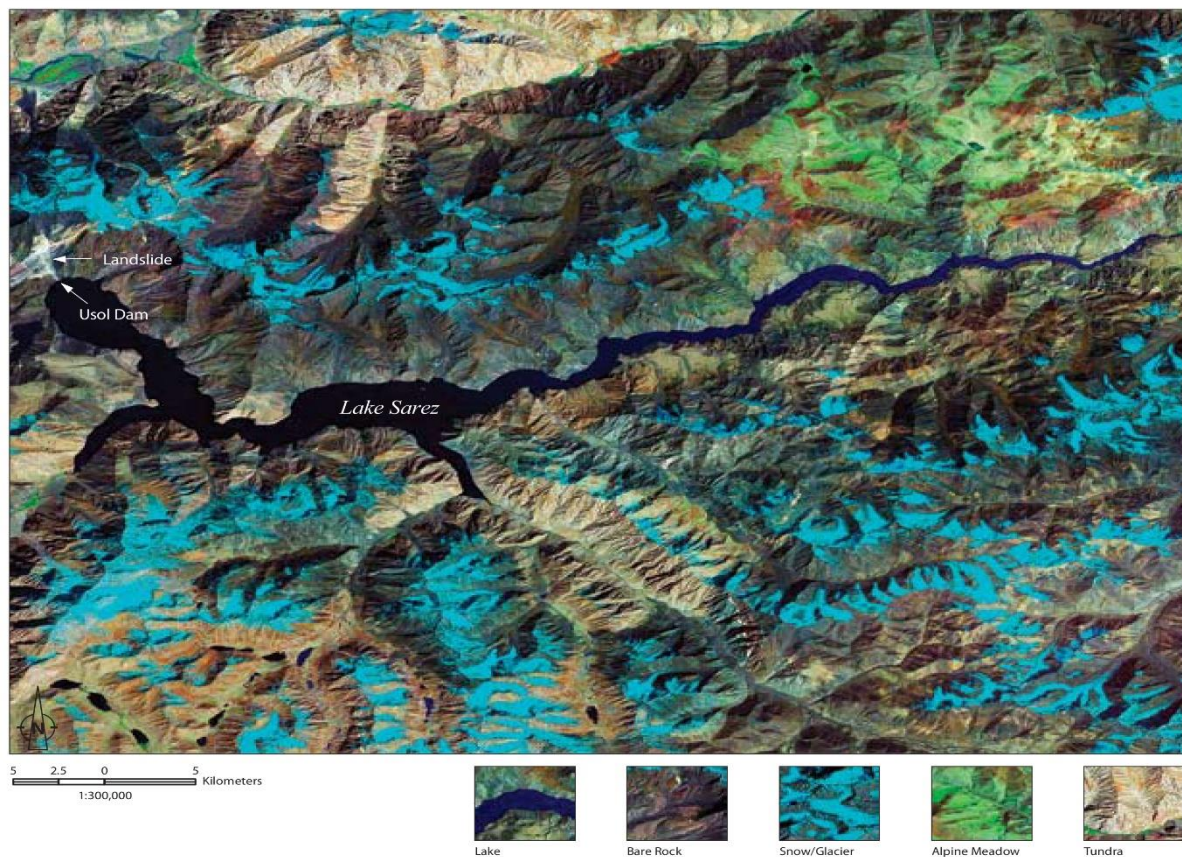


Figure 2. Lake Sarez.

Capture springs are used for self-irrigation.

Wells can be shallow, tubular. Pipe diameters range from 30-100 cm. Depth is up to 100 m, up to 50-100 l / s using water pumps. One well can irrigate up to 200 acres. When groundwater is used, aquifers are often used. They increase the size of the irrigation area, helping to heat the water. If the cost of water intake exceeds the recovery of groundwater resources, they are artificially replenished with water, that is, they act as groundwater reservoirs. For this purpose, natural groundwater flows (floods and floods), local watercourses, wastewater (from irrigation, production, sewage) can be used. It is done by spontaneous infiltration or by infiltration under pressure. The first is done in the following ways:

- 1) Flooding of the area, which takes up a lot of space, gives good results on low-slope, quiet terrain.
- 2) By building a special pool with a dense network of permeable bubbles and egats, small channels (in difficult terrain conditions).
- 3) Permanent and temporary watercourses, wells, mines, quarries, natural quarries are used.

Pressure infiltration is the delivery of water under pressure through wells built into a water intake. This method is often used against intrusion, i.e., against the addition of saline seawater to groundwater on the seashore.

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