



GENERAL DESCRIPTION OF THE CLIMATE AND WATER RESOURCES OF UZBEKISTAN.

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Annotation. *Uzbekistan has a continental climate due to its remoteness from the oceans and seas, inland of the Eurasian continent, and is characterized by extremely clear, serophobic, long-lasting hot and dry summers, and somewhat cold winters for this geographical area. In Uzbekistan, there are large differences between the annual changes in all elements of the climate, which depend primarily on the characteristics of the factors that create the climate. The climate of Uzbekistan is formed as a result of its geographical location and related solar radiation, atmospheric circulation, relief, surface condition, the impact of human activities (anthropogenic) on the climate.*

Keywords: *Climate, circulation, relief, temperature, underground.*

One of the most important factors in shaping the climate of Uzbekistan is its geographical location and related solar radiation. Solar radiation is the energetic basis of all natural processes. Solar radiation, in turn, depends on the latitude of the earth, the openness of the air, and the period during which the sun shines. Uzbekistan has a continental climate due to its remoteness from the oceans and seas, inland of the Eurasian continent, and is characterized by open, serophthora, long-lasting hot and dry summers, and somewhat cold winters for this latitude. In Uzbekistan, there are large differences between the annual changes in all elements of the climate, which depend primarily on the characteristics of climate-forming factors.

The largest rivers in Central Asia, the Amudarya and the Syrdarya, play an important role in water supply of Uzbekistan. The longest river is the Syrdarya, with a length of 2981 km. The wettest river is the Amudarya. Its length is 2660 km. However,



these rivers do not fully meet the water needs of the republic. There are about 250 lakes in Uzbekistan, mostly small lakes. The largest of these lakes are Aral and Aydarkol. The island was named the Sea because of its size, but its level has dropped dramatically in recent years. Some of the small lakes are healing (Tuzkon, Akhsikent, Dengizkol, Kurbankol, Balikkol, etc.).

Uzbekistan's inland waters include rivers, lakes, groundwater, glaciers, reservoirs, canals and ditches. Inland waters depend not only on the climatic features of the republic, but also on other elements of its nature, in particular its relief. The relief affects the inland waters, including the process of flow formation, directly and indirectly through natural-geographical factors, especially climatic factors. Because the mountain slopes are often steep, rain, melted snow, and ice water quickly flow down and form streams and rivers. In addition, due to the increase in absolute altitude in the mountains, more precipitation falls, low temperatures cause a thick layer of snow, which saturates the glaciers. The melting of snow and ice creates favorable conditions for the formation of groundwater and the saturation of rivers.

In the plains, which occupy 71% of the country's land area, water generated in the mountains is used as a result of evaporation (from fields, irrigation canals, soil and vegetation) and absorption. Because there is very little rainfall in the plains, but due to the high amount of possible evaporation due to the long duration of the cloudless hot days, the rivers are very small, the groundwater is relatively deep and salty. For these reasons, there are no rivers with a constant flow in the plains of the country, except for transit rivers.

Influence on air masses - freely enters from the north, northwest and west. However, the presence of mountains such as Paropamiz in the southern part of the republic prevents the inflow of warm tropical air masses.

Effect on precipitation - humid western, northwestern air masses blow more in summer than in winter, precipitation does not occur in the plains due to extreme heat



in summer, and in the mountainous part due to low temperatures condensation rain or snow.

TEMPERATURE DISTRIBUTION

radiation

to the horizontal exchange of air

surface structure

TEMPERATURE DISTRIBUTION IN WINTER

The winter weather in Uzbekistan is changeable, with the coldest temperature in January. The average temperature in January also fluctuates from northwest to south in the plains of the republic: in Churuk - 11.1 °, in Nukus - 6.9 °, in Urgench - 5.1 °, in Shafirkan - 1 , 5 °, in Karakul — 0.4 °, in Karshi —0.2 °, in Sherabad —3.6 °. These data show that the average January temperature is below zero in the plains of Uzbekistan, except for Surkhan-Sherabad, the valley and the rest of the Kashkadarya region, such as Kitab, Guzar, as well as in the mountains.

MINIMAL TEMPERATURE

In winter, due to the inflow of cold air from the Arctic and Siberia, the temperature in the territory of Uzbekistan dropped sharply, reaching the lowest temperature in the north-east (Churuk - 37 °, Nukus - 32 °, Tomdi - 31) - 29 ° -37 °. falls. At the same time, the lowest temperature in the Surkhan-Sherabad valley, which is the warmest region of Uzbekistan (-20 ° in Sherabad, -21 ° in Termez, -23 ° in Denau, -25 ° in Kumkurgan) also dropped to -20-25 °. , damages subtropical plants.

TEMPERATURE DISTRIBUTION IN SUMMER

Summers in Uzbekistan are clear, dry, hot, and affected by local tropical air masses. the sun's rays fall steeply and shine for a long time, resulting in the earth's surface becoming very hot in July, and the sands in the deserts can heat up to 80 °. The



plains and foothills are warm, and the average July temperature rises to 27.3° - 32° . The hottest places in the country in summer are in the central part of the Kyzylkum (average July temperature 30° in Tomdi) and Surkhan-Sherabad valley (-31.4° in Termez, -32.1° in Sherabad). passes. The region with the coolest summers in the country is the Lower Amudarya and Ustyurt Plateau (27.3° in Churuk, 27.1° in Nukus, 27.3° in Urgench) and $27.1-27.3^{\circ}$. ., But as it rises in the mountains, the average July temperature drops to 16.2 at an altitude of 2,300 m on the Ahangaron Plateau, 10.3 at 3,200 m on the Turkestan ridge, and 4.2° at an altitude of 3,700 m in Western Tianshan.

MAXIMUM TEMPERATURE

The highest temperature in the plains of Uzbekistan in July is $43-44^{\circ}$ in the northwest ($Q43^{\circ}$ in Churuk, $Q44^{\circ}$ in Nukus), 45° in the central part (45° in Shafirkan and Karakol), and 48° in the south-east. . The hottest place in Uzbekistan was in Termez, where on June 21, 1914 the maximum temperature reached 49.6° .

CHARACTERISTICS OF INSIDE WATER OF UZBEKISTAN

The density of river networks in Uzbekistan is not the same. In the plains, which occupy 71% of the country's land area, river networks are very sparse, with a per capita 2 m per square kilometer. The average density of river networks in the Commonwealth is per square meter. km area is 140 meters. In the hills, which occupy 17% of the country's territory, the river network is relatively dense. However, many irrigation canals (canals, canals) start here, distributing their water in all directions and using it for irrigation.

In the mountainous part of Uzbekistan, which occupies 12% of the land area, each sq. Km. km. The average area is 140-150 m. long river networks. The uneven density of river networks in the country depends, first of all, on its relief and climatic features. Therefore, most of the precipitation in the fibrous part of the terrain, which has a high relief, sernam, and low evaporation (due to low temperature) (potential



evaporation), turns into streams and forms streams and rivers. According to the data, the western part of the country receives 1000-1500 mm of precipitation per year. This is Norin, which begins on the west side of the strings. Zarafshon. Caused rivers such as Chirchik and Koradarya to become wet. In the plains of the country, on the contrary, the summer is hot, dry, serophthora, the annual precipitation is about 80-200 mm, but the possible evaporation is 1500-2000 mm. In such a climatic condition, it is very difficult for the flow to occur. Due to this, river networks are very sparse in the plains of the republic. The rivers of Uzbekistan receive their water mainly from its mountainous part and from the networks in Kyrgyzstan and Tajikistan. If we say that the annual flow in the Amudarya and Syrdarya basins is 100%, then only 8% of the Amudarya and 10% of the Syrdarya flow occur in the territory of Uzbekistan. Norin, one of the most important rivers in Uzbekistan, The upper reaches of the Karadarya, Sokh, Chirchik, Zarafshan, Kattadarya, and Surkhandarya rivers are located outside the republic, collect water from these areas and use the collected water in the middle and lower reaches, ie in the republic.

Most rivers flowing through Uzbekistan collect water from the melting of permanent snow and glaciers in the mountains of Tajikistan and Kyrgyzstan. Due to the fact that the mountains of the country are not so high, the main source of water for rivers is snow. According to V. L. Schultz, the contribution of glacial waters to the saturation of Turkestan rivers is much smaller than that of snow. According to him, ice water makes up only 10-15% of the total flow. Even in rivers such as Isfara, Sokh, and Zarafshan, which have the largest number of glaciers in the catchment area of the country, the share of ice is 25-30% of annual flows. On the contrary, snow and groundwater play an important role in saturating the rivers of Turkestan, including the republic.

In addition to ice and snow, rainwater in the hot season also contributes to the saturation of rivers in Uzbekistan. The share of rainwater is about 5-15% of the annual flow of rivers in the country. In the saturation of rivers such as Zarafshan, Sokh, Isfara,



which begin in the highlands, rainfall is only 1-2% of the annual flow; 6% of the annual flow of rivers in the Syrdarya basin and 3.5% of the annual flow of rivers in the Amudarya basin. The share of rainwater in the saturation of rivers such as Ahangaron, Guzar, Sangardak, Sherabad, which start in the lowlands, is 10-15%. Even the share of rainwater in the annual flow of the Talas and Tusun rivers can increase by 30% or more. Thus, according to V. L. Schultz and R. Mashrapov, only 5% of the total flow from the mountains of Turkestan, including Uzbekistan, to the plains is formed by rainwater.

Hydrographic features of the rivers of Uzbekistan

Saturation of rivers in Uzbekistan

Ice and snow

Snow and ice

From snow and rain

Groundwater

There are several rivers and streams in Uzbekistan, the most important of which are the Amudarya, Syrdarya, Naryn, Karadarya, Zarafshan, Chirchik, Surkhandarya, Kashkadarya, Ahangaron, Isfayramsay, Sokh and Isfara. We give below hydrological information about some rivers. Information about the rest is given in the description of the natural geographical areas.

Uzbekistan's hydropower resources are being used to build a number of hydropower plants. The most important of these are 19 HPPs built on the Chirchik River (the largest being the Chorbor HPP), the Farhod HPP in the Syrdarya, and others. Currently, the energy generated by hydropower plants built on the rivers of Uzbekistan accounts for only 3.2% of the total hydropower resources of the country's rivers.

Conclusion



Thus, the above data show that the hydrological properties of the wire part of Uzbekistan and the part of the plain are completely opposite. Because moisture accumulates in the mountainous part of it, part of it evaporates, part of it flows into the water, part of it absorbs and forms groundwater: the rest saturates the groundwater in the plain. rivers that start from the net, when they reach the plains, much of their water evaporates, is absorbed, is used for irrigation, and many rivers run out of water and disappear into the desert before reaching a certain basin.

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