

M.M. Avezov^{1*}, F.U. Jumayev²

^{1,2}National University of Uzbekistan named after Mirzo Ulugbek, Tashkent, Uzbekistan;
(*Corresponding author. E-mail: muxriddin_avezov@mail.ru)

¹ORCID ID: 0009-0002-7918-3921

²ORCID ID: 0009-0006-2430-5206

**Geographical and etymological analysis of toponyms expressing
the natural conditions of Southern Uzbekistan
(on the example of toponyms of the Surkhandarya region)**

This article examines the toponyms of the Surkhandarya Region in southern Uzbekistan, with particular attention to geographical names that reflect the natural conditions of the territory. The study focuses on the relationship between place names and the physical-geographical characteristics of the region, including relief, hydrography, soils, vegetation, geological structure, and landscape differentiation. Based on cartographic, etymological, and geographical analyses, a thematic map of toponyms related to natural conditions was developed. The meanings and origins of selected geographical names were analyzed from a geographical perspective, revealing how local toponyms preserve information about the natural environment and historical perceptions of the landscape. Using the Surkhandarya Basin as a case study, the article identifies a spatial pattern in the distribution of toponyms related to natural conditions. In particular, the number of such geographical names increases from the oasis areas along the river valley toward the mountainous watershed zones. This pattern reflects the increasing diversity of relief forms, hydrological features, and landscape components in the upper reaches of the basin. The results demonstrate that toponyms represent not only linguistic and cultural heritage but also valuable indicators for reconstructing regional natural conditions, understanding landscape identity, and supporting geographical, cartographic, and toponymic research.

Keywords: Surkhandarya region, toponyms, geographical names, natural conditions, landscape indicators, river basin, oronyms, geographical analysis, Uzbekistan.

Introduction

The deepening of globalization processes in the world and the expansion of interstate trade, economic, scientific, technical, cultural, and tourism ties are sharply increasing the scope of geographical names. Today, geographical names are of great importance not only as a means of identifying and determining the location of a specific object, but also as an important source of information about territorial identity, historical memory, cultural heritage, the physico-geographical environment, and social development. Therefore, at the international level, special attention is paid to the scientific study of geographical names, the determination of their etymological roots, semantic content, stages of historical formation, and patterns of territorial distribution. In particular, within the framework of the United Nations and its structures

specializing in the standardization of geographical names, consistent work is being carried out to normalize toponyms and apply them in a uniform form in official documents, maps, electronic databases, navigation systems, and international communication processes [1].

The international standardization of geographical names holds significant scientific and practical significance in the modern information society. Because the different spelling or pronunciation of the name of the same geographical object in different sources can create uncertainties in cartography, cadastre, transport and logistics, tourism, emergency management, scientific research and international document exchange. Therefore, the creation of explanatory dictionaries of geographical names, electronic reference books, national and regional toponymic databases is one of the urgent tasks. Such sources serve as an important methodological basis for determining the origin, meaning, type of object, location, historical forms and norms of application of names.

The study of regional toponymy is of considerable scholarly significance in this regard. This is because the toponymic system of any given territory develops in close connection with its natural conditions, relief, hydrography, climate, flora and fauna, economic activities, ethnic composition, and historical evolution. Components such as mountain, stream, river, spring, gorge, ridge, desert, foothill, cliff, and pass indicate not only the type of geographical object, but also the physico-geographical character of the place itself [2]. For this reason, toponyms are regarded as an important evidential source in geographical research.

This issue is particularly relevant in the case of the Surkhandarya Basin. Located in the southern part of Uzbekistan, this region is distinguished by its complex orographic structure, river valleys, piedmont plains, foothills, gorges, streams, springs, and ancient settlements. The hydronyms formed in this area denote water bodies, while the oronyms refer to relief forms such as mountains, ridges, gorges, and passes. Together, they are of great importance for studying the natural structure of the territory, local perceptions of space, and the historical relationship between people and the natural environment.

The study of the toponymy of the Surkhandarya Basin is not limited merely to determining the etymology of place names. It also serves to reveal the relationship between the natural environment and human activity, the patterns of ancient settlement, the history of water-resource use, and the stages of development of piedmont and valley areas. In this sense, toponyms may be interpreted as a “linguistically encoded model” of the regional landscape, reflecting the historical perception of the natural environment and accumulated local geographical experience [3].

Therefore, the investigation of the natural-geographical foundations of the toponymy of the Surkhandarya Basin is both scientifically and practically relevant. Such research provides a necessary basis for identifying the regularities governing the formation of the regional toponymic system, clarifying the etymological and semantic features of place names, substantiating their relationship with natural conditions, developing scientifically grounded recommendations for the naming and renaming of geographical objects, and improving toponymic databases and cartographic materials.

Materials and Methods

As research materials, the study selected geographical names occurring in Surkhandarya Region and within the Surkhandarya Basin that reflect natural conditions and their individual components. For the analysis, toponyms such as Boysun, Darband, Jarkurgan, Kuchuktepa, Mumlaykhona, Aktuprak, Pangat, Kayrak, Kyzryk, Kyzylnovur, Sina, Chulbayir, Dibolo, Okkapchigay, and Kapchigay were taken as the main units of investigation. These names are distinguished by their capacity to reflect relief forms, rock types, colour attributes, water bodies, gorges, hills, ravines, and other natural-geographical features.

The research drew upon scholarly literature, toponymic dictionaries, historical-geographical sources, cartographic materials, as well as local explanations and field-based information. In particular, T. Nafasov's views on the etymology and semantics of toponyms, and data concerning the physico-geographical conditions of Surkhandarya Region served as key sources for the study [4].

The methodology of the research was based on a comprehensive approach. The etymological method was used to clarify the origin and structural components of the toponyms. Through semantic analysis, the study identified which physico-geographical features were encoded in the meanings of the names. The geographical analysis made it possible to assess the relationship between the toponyms and the actual natural environment, particularly relief, river networks, rock composition, elevations, and valley systems.

In addition, the cartographic method was applied to compare the spatial distribution of the names with cartographic materials. Through a comparative-analytical approach, the toponyms were grouped according to the features they represent, including orographic-relief, hydrographic, lithological-mineralogical, and colour-

related characteristics. The landscape-indicative approach enabled the interpretation of geographical names as a source of information about the natural environment and ecological processes.

Results and Discussion

The Surkhandarya Basin is widely recognized for its distinctive natural conditions, including diverse relief forms, particularly mountain peaks and caves, varied landscapes, a specific climatic regime, and rich natural resources. The geographical names of the basin not only reflect these natural conditions but also serve as an important source for understanding the ethnic, cultural, and everyday-life characteristics of the population living in this territory. Surkhandarya Region is located in the southernmost part of Uzbekistan, with the Amu Darya, one of the largest rivers in Central Asia, flowing along its southern boundary. From the north-west, north, and east, the region is surrounded by the Hissar Range and its branches [2]. The relief of the basin generally descends from the surrounding mountainous areas toward the centre and from north to south; its central and southern parts are predominantly occupied by plains. In the central part of the region, the Surkhandarya River flows from north to south, forming floodplains and river terraces.

It is well known that geographical names function as indicators of the natural-geographical characteristics of a territory, including its climate, water bodies, flora and fauna, orographic structure, and other environmental features. A deeper investigation of the interrelationship between natural conditions and geographical names is therefore of particular importance for interpreting regional toponyms, as well as for scientifically substantiating the naming and renaming of geographical objects within a given territory.

The analysis of geographical names reflecting the natural conditions of Surkhandarya Region demonstrates that the regional toponymy is not merely a collection of place names, but rather an important scholarly source that embodies the natural environment, relief forms, geological structure, hydrographic processes, historical settlement patterns, and the spatial perception of the local population. Through the etymological and semantic analysis of toponyms, it becomes possible to determine which natural feature of a particular locality was dominant in the formation of a place name, and what role relief, mountain systems, ravines, gorges, caves, cliffs, watercourses, or useful natural materials played in this process. In this regard, the toponymy of the Surkhandarya Basin may be regarded as a rich source that integrates the physico-geographical image of the region with historical memory.

A significant feature of the names denoting natural conditions in the Surkhandarya Basin is that they were often formed on the basis of the direct landscape characteristics of a place. Such names reflect the natural appearance of the territory as a kind of “*linguistically encoded map*”. For example, components such as mountain, gorge, ravine, cliff, hill, barrier, stream, and spring indicate, on the one hand, the type of geographical object and, on the other hand, the natural-geographical features of the locality, namely its relief, geological structure, relationship with water, or morphological appearance [3]. This substantiates the need to study toponyms not only from a linguistic perspective but also from the standpoint of physical geography.

One of the most ancient and naturally significant toponyms in the Surkhandarya Basin is Boysun. The Boysun area has long been regarded as one of the settlements with favourable natural conditions for human habitation. The Teshiktash Cave, located to its north-west, is one of the important sites that sheds light on the ancient paleogeographical and anthropogenic history of the region. According to available data, the surroundings of Boysun have been inhabited since very ancient times, a circumstance closely associated with the area’s natural resources, piedmont environment, water sources, and protected relief forms.

The etymology of the toponym Boysun is interpreted through the ancient Turkic linguistic layer. According to researchers, the term *Boysun* may consist of the ancient Turkic components *boy* and *sin*, which may convey the meanings of “*great mountain*”, “*large mountain*”, or “*high mountain*” [5]. This interpretation corresponds directly to the physico-geographical conditions of the area, since the town of Boysun is located near the Boysuntag Range, a south-western branch of the Gissar mountain system. Thus, the formation of the name was primarily determined by the orographic character of the territory, with mountainous relief serving as the key semantic factor.

This interpretation is further reinforced by the orographic meaning of the word *sin*. According to T. Nafasov’s interpretation, the areal distribution of *sin* is quite extensive: in the Altai and Siberian regions it has been preserved in the meaning of “*mountain*” or “*mountain range*”, whereas in the Volga region, Central Asia, and Kazakhstan it has been used in the meanings of “*stature*”, “*height*” or “*bodily build*”. This indicates that the semantic roots of the name Boysun are connected with ancient Turkic geographical perceptions [6-7]. Therefore, the name Boysun should not be regarded as accidental or merely historical-

ethnic in origin; rather, it may be interpreted as an oronymic unit reflecting the mountainous natural character of the territory.

The name of *Darband* village in Boysun District is also directly related to the relief of the area and its natural route system. The word *Darband* is derived from the Persian-Tajik components *dar*, meaning “door” or “gate”, and *band*, meaning “closed”, “fortified”, or “blocked”. It thus conveys the meaning of “a narrow passage between mountains”, “a crossing point”, or “a pass compressed like a gate”. Such names are usually encountered in mountainous areas, particularly where strategic routes pass through river valleys or gorges. Accordingly, the toponym *Darband* directly reflects a geomorphological condition, namely a narrow passageway between mountains [7]. This name indicates the close connection of the area with natural barriers, mountain corridors, and historical communication routes.

The name of *Jarkurgan* District in the Surkhandarya Basin represents one of the complex toponyms formed through the interaction of relief processes and human historical-cultural activity. The first component of the name, *jar*, as a physico-geographical concept, denotes a deep depression, incision, or cleft formed on the earth’s surface as a result of rainfall, mudflows, floods, erosion, landslides, collapses, or other denudational processes. Ravines usually develop more actively in elevated plains composed of soft rocks, piedmont slopes, foothill areas, and territories with uneven relief. Therefore, the frequent occurrence of the component *jar* in toponymic units shows that, from ancient times, local populations used the most visually prominent features of relief as an important criterion in naming places.

The second component of the name *Jarkurgan*—*kurgan* is associated with human activity, defensive structures, and a sedentary way of life. The term *qo‘rg‘on* generally refers to a fortified settlement or castle, often situated on a slightly elevated site, surrounded by walls and provided with gates. Early fortifications of this type were built to protect settlements from external threats, to control strategic locations, and to reinforce inhabited areas. According to local narratives and explanations, the name *Jarkurgan* is associated with a fortress that was once located on the edge of a ravine formed by river erosion or natural erosional processes. This interpretation shows that the toponym reflects the relationship between natural processes and historical settlement patterns. Thus, the name *Jarkurgan* simultaneously embodies a geomorphological feature—the ravine—and an anthropogenic object—the fortress.

The name *Kuchuktepa*, located near the city of Termez, is noteworthy as a toponym that conveys the dimensional characteristics of a relief form. In Old Turkic, the word “*kuchuk*” meant “small”, while the component *tepa* denotes a relatively low elevation rising above the surrounding surface, the remains of an ancient settlement, or a natural-anthropogenic relief form [4]. From this perspective, the name *Kuchuktepa* appears to have been formed on the basis of the object’s size, namely its morphological characteristic of being smaller or lower than other hills. Such names were used by ancient populations to distinguish places from one another, to facilitate spatial orientation, and to express territorial features with precision.

The name of the *Mumlaykhona* or *Mumiyokhona* cliff in Sherobod District is of particular importance as a rare toponymic unit reflecting geological and mineral-organic characteristics. The name *Mumlaykhona* conveys the meaning of “a place where *mumiyo* is abundant”. The fact that in southern Uzbekistan *mumiyo* is pronounced in some dialects as *mumlay* indicates the local phonetic formation of this name [8, 9]. *Mumiyo* is generally regarded as a mineral-organic substance occurring in fractures of mountain rocks, caves, rocky areas, and mountainous environments with a dry microclimate. Its formation is associated with long-term geological and biochemical processes, resulting from the decomposition of plant remains, microorganisms, and certain animal residues within rock masses and their subsequent transformation under the influence of pressure, temperature, humidity, and microclimatic conditions. Therefore, the name *Mumlaykhona* reflects not only the external relief form of the locality, but also its geological and mineralogical properties.

Such toponyms are also highly significant from the perspective of environmental protection. Geographical names can provide preliminary information about natural resources, geological objects, water sources, natural processes, or ecological risk factors present in particular areas. For example, names containing the component *jar* may indicate areas where erosion processes are intense; names such as *Darband* may refer to narrow passages between mountains; and names such as *Mumlaykhona* may point to a geological environment where a rare mineral-organic substance occurs. This makes it possible to use toponyms as additional indicators in ecological monitoring, landscape planning, the protection of natural heritage sites, and the identification of hazardous geomorphological processes.

The toponyms examined in the case of the Surkhandarya Basin demonstrate that the semantic layer associated with natural conditions is highly pronounced in the geographical names of the region. The names

Boysun and Darband reflect mountainous relief and orographic conditions; Jarkurgan embodies both erosional processes and a historical defensive settlement; Kuchuktepa indicates the dimensional feature of a relief form; and Mumlaykhona expresses geological and mineralogical characteristics. Thus, these names are deeply integrated with the physico-geographical features of the territory, and their analysis makes it possible to draw important scholarly conclusions about the landscape structure of the Surkhandarya Basin, ancient settlement patterns, and local natural resources.

In the toponymy of the Surkhandarya Basin, names associated with natural conditions—particularly relief, rock composition, hydrographic processes, and geomorphological features—occupy a highly significant place. This indicates that, from ancient times, the local population, when naming settlements and geographical objects, primarily relied on the most visually prominent natural features: the structure of the earth's surface, watercourses, mountain slopes and ravines, as well as the colour and composition of soils and rocks [4, 9]. In this regard, toponyms such as Aktuprak, Pangat, Kayrak, Kyzryk, Kyzylnovur, Sina, Cholbayir, Dibolo, and Kapchigay may be interpreted as important evidence of the physico-geographical image of Surkhandarya Region as reflected in place names.

The name of Aktuprak village in Boysun District is one of the toponyms formed in direct connection with the lithological characteristics of the area. The widespread occurrence of kaolin, chalk, and other white-coloured rocks in this territory provided the basis for the formation of the term “oq tuproq” (“white soil”) in the language of the local population. In folk geographical terminology, colour-denoting components usually express the most noticeable feature of a natural object. Here, the component oq (“white”) denotes the colour characteristic of the soil or rock, while tuproq (“soil”) indicates the geological and lithological nature of the object [8]. Over time, the local designation of these materials as oqtuproq was transferred to the place itself and became established as the name of the village. Thus, the toponym Oqtuproq preserves important geographical information about the natural composition of the area, particularly the presence of white-coloured mineral rocks.

The name of Pangat village in Oltinsoy District deserves particular attention from both orographic and historical-linguistic perspectives. T. Nafasov interprets this name as belonging to the Sogdian linguistic layer and notes that it consists of the morphemes pan + gat [4]. The first component, pan, par, or bar, conveys the meaning of “upper” or “high”. The second component originally had the form kat and denoted a fortress, courtyard, stronghold, settlement, or village. As a result of subsequent phonetic changes, the form parkat developed into pargat and later into pangat. On this basis, the toponym Pangat may be interpreted as meaning “upper fortress”, “elevated village”, or “settlement located at a higher position”.

The physico-geographical location of Pangat village confirms this etymological interpretation. The village is situated in the southern part of the Boysuntag Range, in the headwater area of the Khalkajar River. Under such relief conditions, the formation of a settlement on a relatively elevated site is a natural phenomenon, and the name itself reflects precisely this orographic feature. Thus, in the toponym Pangat, semantic elements belonging to the ancient Sogdian linguistic layer are closely integrated with the relief characteristics of the locality [9, 10]. This demonstrates the interrelationship between ancient linguistic strata and natural conditions in the toponymy of the Surkhandarya Basin.

The name of Kayrak village in Angor District is also a naturally grounded toponym from a physical-geographical perspective. The word qayroq usually denotes a smooth and hard stone used for sharpening blades or cutting tools. Such stones are mainly found in river floodplains and terraces. This is because rock fragments are transported over long distances by river flow; during this process they rub against one another, become smoothed, and acquire a rounded shape. As a result, some of them become suitable for use as whetstones. The location of Kayrak village near a river floodplain further strengthens the natural basis of the name. In this case, the toponym was formed in connection with the geomorphological activity of running water, alluvial materials, and the local population's practical experience of using them.

The component qiz in the name of Kyzryk District requires a more complex etymological interpretation. In modern literary Uzbek, the word qiz may be associated with colour or other meanings; however, in toponymic analysis it is necessary to pay attention to its ancient form quz. In Old Turkic, quz denoted the side of a mountain not reached by sunlight, a shaded or north-facing slope, a high cliff, or a mountain peak. Although this word later fell out of active use in the development of the Uzbek literary language, its traces have been preserved in folk speech and in place names.

From this perspective, the name Kyzryk or Qizariq may be interpreted as “a canal at the foot of an elevation”, “a watercourse running along the edge of foothills” or “a canal passing through uneven elevated terrain” [4]. This interpretation shows that the name was formed through the combination of

hydrographic and orographic features. In other words, the toponym reflects, on the one hand, a watercourse — aryk — and, on the other, a relief feature associated with an elevation, foothill, or mountain slope. Thus, the name Kyzyryk may also be regarded as a toponymic unit expressing the natural conditions of the area, particularly the relationship between a water channel and the surrounding relief.

The name of Kyzylnovur village in Boysun District was likewise formed through the combination of mountainous relief and a colour attribute. The term novur is interpreted as denoting a transparent or open ravine on a mountain slope, an accumulation of large stones, or a place where talus materials have gathered. Such features usually develop on mountain slopes as a result of weathering, erosion, and gravitational mass movement. The component kyzyl (“red”) may be associated with the colour of the rocks, the presence of oxidized iron compounds, or reddish weathered materials. The location of Kyzylnovur village west of the Boysuntag Range, within a mountainous area, confirms the physico-geographical basis of this name. In this toponym, the colour of the rocks, slope processes, and relief form are reflected together.

The name of the village of Sina in the Denau district is also an important toponym related to the relief. “*Sina*” or “*siyna*” as a geographical term refers to a positive landform, a hill, or a separately elevated elevation [9]. This name fully corresponds to the natural location of the village, as the village of Sina is located at the foot of the Chulbayir Mountains, between high hills. Consequently, the name reflects the territorial location of the object and its connection to positive landforms. Such toponyms served as a landmark for the ancient population; that is, a hill or elevation was the primary criterion for distinguishing a place from other settlements.

Table 1

Toponyms Reflecting Natural Conditions in Surkhandarya Region

No.	Geographical names	Location	Main meaning	Physico-geographical feature
1	Boysun	Boysun District	“Great mountain”, “large mountain”	Mountainous relief; associated with the Boysuntag Range
2	Darband	Boysun District	“Narrow passage”, “mountain corridor”	Gorge, mountain pass, route through the mountains
3	Jarkurgan	Jarkurgan District	“Fortress near a ravine”	Ravine formed as a result of erosional processes
4	Kuchuktepa	Termez District	“Small hill”	Low elevation, hillock
5	Mumlayxona	Sherobod District	“Place where mumiyo occurs”	Cliff, cave, and fractures in mountain rocks
6	Aktuprak	Boysun District	“White-coloured soil/rock”	Kaolin, chalk, and white-coloured rocks
7	Pangat	Oltinsoy District	“Upper village”, “elevated fortress”	Settlement located on elevated terrain
8	Kayrak	Angor District	“Smooth sharpening stone” / “whetstone”	River floodplain and alluvial stones
9	Kyzyryk	Kyzyryk District	“Canal at the foot of an elevation”	Watercourse running along foothills or elevated terrain
10	Kyzylnovur	Boysun District	“Red-coloured stone accumulation/ravine”	Mountain slope, talus deposits, reddish rocks
11	Sina	Denov District	“Hill”, “elevated place”	Positive relief form
12	Chulbayir	Surkhantag Range	“Uneven/depressed place in the desert”	Sparsely vegetated, karstified limestone relief
13	Dibolo	Boysun District	“Upper village”	Village located on a hill or elevated site
14	Akkapchigay	Kumkurgan District	“White narrow gorge”	Narrow ravine or gorge through which water flows
15	Kapchigay	Boysun, Kumkurgan	“Narrow gorge with flowing water”	Narrow valley, gorge, and watercourse

The name of the Chulbayir Mountains, located in the Surxontag Range—the south-western branch of the Hissar system within the Surkhandarya Basin—is one of the important oronyms that reveals the geomorphological and landscape characteristics of the area. The term bayir is generally used to denote uneven, dissected, hollowed, or undulating landforms formed in arid regions under the influence of wind

activity. The component cho'l, in turn, refers to a dry, open landscape with sparse vegetation. This part of the Surkhantag Range is distinguished by poor vegetation cover, a predominance of limestone rocks, and a high degree of karstification. Therefore, the name Chulbayir accurately reflects the natural appearance of the area: dry, sparsely vegetated, strongly affected by karst processes, and characterized by uneven relief. This name embodies the close relationship between landscape appearance, rock composition, and geomorphological processes.

The name of Dibolo village in Boysun District is another toponym directly associated with geographical location. It originates from the form Dehi bolo, which in Persian-Tajik means “*upper village*”, “*village located above*” or “*village on elevated ground*”. The village’s position on relatively higher terrain, its natural setting, and its vertical elevation in the relief served as the basis for its naming. Such names are common in piedmont and mountainous areas, where the distinction between “*upper*” and “*lower*” locations played an important role in differentiating settlements. In this respect, the name Dibolo is a toponym that reflects the vertical differentiation and positional characteristics of the territory.

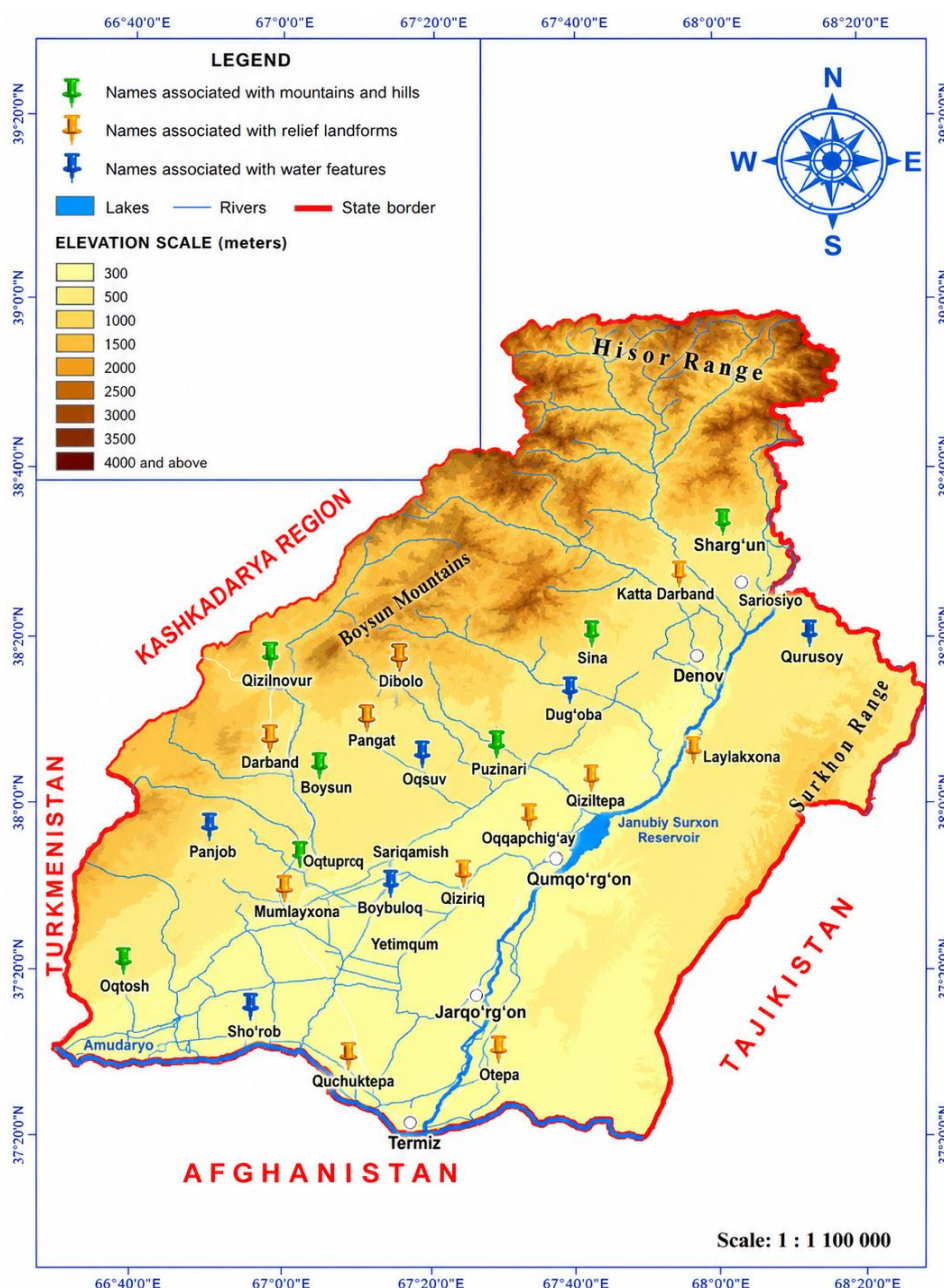


Figure 1. Map of the location of certain geographical names representing the natural conditions of the Surkhandarya basin

One of the important geographical terms found in the toponymy of southern Uzbekistan is *qapchig'ay*. This term denotes “a narrow gorge through which water flows”, “a constricted gorge-like passage” or “a compressed watercourse between two slopes”. In Surkhandarya Region, the village names Akkapchigay in Kumkurgan District, as well as Kapchigay or Kapchugay in Boysun and Kumkurgan districts, arose because these settlements are located near narrow gorges, ravines, or water passages. Names of this type are formed in places where relief and hydrography intersect: a watercourse passes through a narrow valley, while the surrounding slopes define the natural boundaries of the object. The component *oq* in such names may often be associated with the clarity of the water, the visual appearance of the flow, white-coloured rocks, or the colour characteristics of the locality. Thus, toponyms of the Kapchigay type serve as important indicators of narrow gorges, watercourses, and geomorphological constriction in the Surkhandarya Basin.

In general, toponyms such as Aktuprak, Pangat, Kayrak, Kyzyryk, Kyzylnovur, Sina, Chulbayir, Dibolo, Akkapchigay and Kapchigay are important manifestations of the natural conditions of the Surkhandarya basin preserved in names. They reflect the relief, geological composition, water networks, geomorphological processes, and landscape features of the territory, serving as a valuable source for physico-geographical research. Therefore, the systematic study of these toponyms is of current scientific and practical importance not only from a historical and linguistic point of view, but also from the point of view of natural geography, ecology, cartography and territorial planning.

On the map shown in Figure 1, one can see the types of toponyms representing the natural conditions of the area depending on which geographical object they represent, as well as the pattern of their increase along the river valley from river terraces to the mountain watershed. Toponyms are divided into the following groups based on conventional signs:



Names associated with water bodies: Aksu, Baybulak, Shurab.



Names associated with rocks: Kyzylnovur, Aktuprak, Mumlaykhona, Aktas.



Names related to relief: Baysun, Darband, Pangat, Dibolo, Kyzyryk, Akkapchigay, Aktepa, Sina, Kuchuktepa, Jarkurgan.

When all these toponyms are analysed in an integrated manner, it becomes evident that the relationship between geographical names and natural conditions in the Surkhandarya Basin is manifested in several major directions. First, there are names based on lithological and colour-related features, with Aktuprak and Kyzylnovur serving as clear examples. Second, names reflecting the elevation and positional characteristics of relief are represented by toponyms such as Pangat, Sina, and Dibolo. Third, names associated with the activity of rivers and watercourses are observed in units such as Kayrak, Kyzyryk, and Kapchigay. Fourth, landscape features and geomorphological processes are expressed in the name Chulbayir. This demonstrates that the semantic layer describing the natural environment in the toponymy of Surkhandarya is both extensive and deeply rooted.

Such names are also of considerable importance from the standpoint of environmental protection. Toponyms can preserve historical-geographical information about erosion, karstification, weathering, water flow, ravine formation, the distribution of rock types, soil colour, or the presence of natural resources in specific areas. For instance, names such as Kapchigay and Kyzyryk indicate the complexity of watercourses and relief; Chulbayir refers to a karstified area with sparse vegetation cover; and Aktuprak points to a specific lithological composition. Such information may be used in landscape monitoring, environmental assessment, the identification of natural hazards, historical-geographical reconstruction, and territorial planning.

Conclusions

Geographical names associated with natural conditions constitute a particularly significant layer within the toponymy of Surkhandarya Region. Such names were formed in direct connection with the region's relief, mountain systems, river valleys, ravines and gorges, soils and rocks, water bodies, vegetation cover, and landscape characteristics. Many of them emerged from the local population's centuries-old geographical observations, experience of perceiving the natural environment, and practical need for spatial orientation. Therefore, the study of the toponymy of Surkhandarya Region is not limited to identifying the origin of names; it also enables the historical and semantic reconstruction of the region's physico-geographical image.

The analysis shows that the spatial distribution of toponyms reflecting natural conditions is not uniform. Most of them increase in number from river-channel terraces toward piedmont areas and mountain

watersheds. This pattern can be explained by the physico-geographical structure of Surkhandarya Region. In river valleys and low-lying plains, names associated mainly with water, floodplains, canals, streams, and river activity are more common. In contrast, in piedmont and mountainous areas, toponyms based on relief, ravines, gorges, mountain passes, cliffs, hills, rock composition, and colour characteristics are relatively more widespread. As elevation increases, the relief becomes more complex, geomorphological forms become more diverse, rock outcrops become more visible, watercourses cut deep gorges, and the visual features of the landscape become more pronounced. As a result, precisely these natural features are firmly reflected in place names.

For example, the occurrence of names such as Kayrak, Kyzzyryk, Kapchigay, and Akkapchigay around river floodplains and terraces is a natural phenomenon, since these names are associated with water flow, canals, narrow gorges, or river deposits. In mountainous and piedmont areas, however, names with orographic and geomorphological meanings, such as Baysun, Darband, Pangat, Sina, Dibolo, Kyzylnovur, and Chulbayir, are more frequently encountered. These names express such characteristics as relative elevation, mountain corridors, hills, cliffs, accumulations of stones, karstified limestone relief, or settlements located on elevated terrain. Thus, the distribution of toponyms is directly connected with the relief structure of the territory, altitudinal zonation, and the interrelationship of natural components.

Regional toponymic research is of substantial scholarly importance precisely because it helps identify these regularities. Geographical names function as a form of historical memory about the natural environment. In some cases, the meaning preserved in a toponym may no longer be fully visible in the present-day landscape; nevertheless, it can provide important information about former natural conditions, water regimes, vegetation cover, relief processes, or economic activities in the area. For this reason, the etymological, semantic, geographical, and cartographic analysis of toponyms makes it possible to establish their most plausible scientific interpretation.

The study of the toponymy of Surkhandarya Region through a regional approach enables the systematization of place-name features associated with natural conditions. In this process, the structural components, meaning, location, and correspondence of each name with the actual natural object are analysed comparatively. As a result, it becomes possible to determine which names are based on relief, which are related to water bodies, which refer to rocks or soil colour, and which reflect other landscape characteristics. This demonstrates that toponyms are not accidental linguistic units, but rather have been formed in close connection with the physico-geographical conditions of the territory.

In this regard, the toponyms of Surkhandarya Region may be regarded as a valuable scholarly source for studying the natural conditions of the area. Identifying the regularities of their spatial distribution makes it possible to interpret geomorphological processes, hydrographic networks, altitudinal zones, and landscape features on the basis of toponymic data. In particular, the differentiation of names associated with natural conditions across river terraces, piedmont zones, and watersheds contributes to a deeper understanding of the spatial structure of the territory.

Overall, geographical names reflecting natural conditions constitute one of the most important and scientifically meaningful layers of the toponymy of Surkhandarya Region. Their analysis makes it possible to reveal the relationship between names and the natural environment, their spatial distribution patterns, etymological and semantic foundations, and ecological-geographical significance. Such research has considerable theoretical and practical value not only for toponymy and physical geography, but also for cartography, ecological monitoring, historical-geographical reconstruction, and territorial planning.

References

- 1 Mirakmalov M.T. Physical and geographical features of the toponyms of Uzbekistan [Electronic resource] / M.T. Mirakmalov, R.A. Ibragimova, M.M. Avezov, D.K. Okhunjonova // IOP Conference Series: Earth and Environmental Science. — 2023. — 1284(1). — 012004. — Access mode: <https://iopscience.iop.org/article/10.1088/1755-1315/1284/1/012004/>
- 2 G'ulomov P. Toponimika va geografik terminshunoslik / P. G'ulomov, M. Mirakmalov. — Toshkent: "Universitet", 2005.
- 3 Kerfoot H. Geographical names: Some current issues in the context of the United Nations / H. Kerfoot // Cartographic Journal, 2004. — 41(2 SPEC. ISS.). — 89–94.
- 4 Нафасов Т. Ўзбекистон топонимларининг изохли луғати (Ўзбекистоннинг жанубий районлари) / Т. Нафасов. — Тошкент: "Ўқитувчи", 1988.
- 5 Xudoyberganov R.Y. O'zbekiston joy nomlarining izohli lug'ati / R.Y. Xudoyberganov, M.T. Mirakmalov, M.M. Avezov [va boshq.]. — Toshkent: "Donishmand ziyosi", 2022. — 624 b.

- 6 Камолиддин Ш.С. Древнетюркская топонимия Средней Азии / Ш.С. Камолиддин. — Ташкент: “ШАРК”, 2006.
- 7 Қораев С.К. Ўзбекистон вилоятлари топонимлари / С.К. Қораев. — Toshkent: “O‘zbekiston milliy ensiklopediyasi”, 2005.
- 8 Миракмалов М.Т. Халқ табиий географик терминлари: монография / М.Т. Миракмалов. — Тошкент: “Фан ва технология”, 2009.
- 9 Semakova E. Identification of the glaciers and mountain naturally dammed lakes in the Pskem, the Kashkadarya and the Surkhandarya River basins, Uzbekistan, using ALOS satellite data / E. Semakova, K. Gunasekara, D. Semakov // Geomatics, Natural Hazards and Risk. — 2016. — 7(3). — 1081–1098.
- 10 Avezov M.M. Physical geographical basis for the formation of the names of mountain glaciers in Uzbekistan and the problem of transcription of glacionyms (using the example of glacionyms of the Piskom basin) / M.M. Avezov // Bulletin of the L.N. Gumilyov Eurasian National University. Chemistry. Geography. Ecology Series. — 2024. — 147(2). — P. 81–91. <https://doi.org/10.32523/2616-6771-2024-147-2-81-91>

М.М. Әуезов, Ф.У. Жұмаев

Оңтүстік Өзбекстанның табиғи жағдайын білдіретін топонимдерді географиялық-этимологиялық талдау (Сурхандария облысының топонимдері мысалында)

Макалада Өзбекстанның оңтүстік бөлігінде орналасқан Сурхандария облысының топонимдері қарастырылған. Ерекше назар аумақтың табиғи жағдайларын бейнелейтін географиялық атауларға аударылған. Зерттеу жер-су атаулары мен өңірдің физикалық-географиялық ерекшеліктері арасындағы өзара байланысты анықтауға бағытталған. Атап айтқанда, жер бедері, гидрография, топырақ жамылғысы, өсімдік жамылғысы, геологиялық құрылым және ландшафттық саралану сияқты табиғи компоненттер ескерілді. Картографиялық, этимологиялық және географиялық талдау негізінде өңірдің табиғи жағдайларын білдіретін топонимдердің тақырыптық картасы әзірленді. Таңдап алынған географиялық атаулардың мағынасы мен шығу тегі географиялық тұрғыдан түсіндіріліп, жергілікті топонимдердің табиғи орта мен ландшафттарды тарихи қабылдау жөніндегі ақпаратты қалай сақтайтынын айқындауға мүмкіндік берді. Сурхандария өзені алабы мысалында мақалада табиғи жағдайлармен байланысты топонимдердің таралуындағы кеңістіктік заңдылық анықталды. Атап айтқанда, мұндай географиялық атаулардың саны өзен аңғары бойындағы оазистік аумақтардан таулы суайрық аймақтарына қарай арта түсетіні байқалды. Бұл үрдіс алаптың жоғарғы бөліктерінде жер бедері пішіндерінің, гидрографиялық нысандардың және ландшафттық компоненттердің алуан түрлілігінің арта түсетінін көрсетеді. Зерттеу нәтижелері топонимдердің тек тілдік және мәдени мұра элементі ғана емес, сонымен қатар өңірлік табиғи жағдайларды қайта калпына келтіруде, ландшафттық бірегейлікті түсінуде, сондай-ақ географиялық, картографиялық және топонимикалық зерттеулерді дамытуда құнды индикатор бола алатынын дәлелдейді.

Кілт сөздер: Сурхандария облысы, топонимдер, географиялық атаулар, табиғи жағдайлар, ландшафттық индикаторлар, өзен алабы, оронимдер, географиялық талдау, Өзбекстан.

М.М. Аvezov, Ф.У. Жумаев

Географический и этимологический анализ топонимов, отражающих природные условия Южного Узбекистана (на примере топонимов Сурхандарьинской области)

В данной статье рассматриваются топонимы Сурхандарьинской области, расположенной в южной части Узбекистана, при этом особое внимание уделяется географическим названиям, отражающим природные условия территории. Исследование направлено на выявление взаимосвязи между топонимами и физико-географическими особенностями региона, включая рельеф, гидрографию, почвенный покров, растительность, геологическое строение и ландшафтную дифференциацию. На основе картографического, этимологического и географического анализа была разработана тематическая карта топонимов, указывающих на природные условия региона. Значение и происхождение отдельных географических названий были интерпретированы с географической точки зрения, что позволило определить, каким образом местные топонимы сохраняют информацию о природной среде и историческом восприятии ландшафтов. На примере бассейна реки Сурхандарьи в статье выявлена пространственная закономерность распространения топонимов, связанных с природными условиями. В частности, установлено, что количество таких географических названий возрастает от оазисных территорий вдоль речной долины в направлении горных водораздельных зон. Данная тенденция отражает увеличение разнообразия форм рельефа, гидрографических объектов и ландшафтных компонентов в верхних частях бассейна. Полученные результаты показывают, что топонимы могут рассматриваться не только

как элемент лингвистического и культурного наследия, но и как ценные индикаторы для реконструкции региональных природных условий, понимания ландшафтной идентичности, а также развития географических, картографических и топонимических исследований.

Ключевые слова: Сурхандарьинская область, топонимы, географические названия, природные условия, ландшафтные индикаторы, речной бассейн, оронимы, географический анализ, Узбекистан.

References

- 1 Mirakmalov, M.T., Ibragimova, R.A., Avezov, M.M., & Okhunjonova, D.K. (2023). Physical and geographical features of the toponyms of Uzbekistan. *IOP Conference Series: Earth and Environmental Science*, 1284(1), Article 012004. Retrieved from <https://iopscience.iop.org/article/10.1088/1755-1315/1284/1/012004/>
- 2 G'ulomov, P., & Mirakmalov, M. (2005). *Toponimika va geografik terminshunoslik* [Toponymy and geographical terminology]. Toshkent: Universitet [in Uzbek].
- 3 Kerfoot, H. (2004). Geographical names: Some current issues in the context of the United Nations. *Cartographic Journal*, 41(2 SPEC. ISS.), 89–94.
- 4 Nafasov, T. (1988). *O'zbekiston toponimlarining izohli lug'ati (O'zbekistonning janubiy rayonlari)* [Explanatory dictionary of Uzbekistan's toponyms: Southern districts of Uzbekistan]. Toshkent: "Ўқитувчи" [in Uzbek].
- 5 Xudoyberganov, R.Y., Mirakmalov, M.T., Avezov, M.M., et al. (2022). *O'zbekiston joy nomlarining izohli lug'ati* [Explanatory dictionary of place names of Uzbekistan]. Toshkent: Donishmand ziyosi [in Uzbek].
- 6 Kamoliddin, Sh.S. (2006). *Drevnetiurkskaia toponimiia Srednei Azii* [Ancient Turkic toponymy of Central Asia]. Toshkent: "SHARK" [in Russian].
- 7 Qorayev, S.K. (2005). *O'zbekiston viloyatlari toponimlari* [Toponyms of the regions of Uzbekistan]. Toshkent: O'zbekiston milliy ensiklopediyasi [in Uzbek].
- 8 Mirakmalov, M.T. (2009). *Xalq tabiiy geografik terminlari* [Folk physical-geographical terms] [Monograph]. Toshkent: Fan va texnologiya [in Uzbek].
- 9 Semakova, E., Gunasekara, K., & Semakov, D. (2016). Identification of the glaciers and mountain naturally dammed lakes in the Pskem, the Kashkadarya and the Surkhandarya River basins, Uzbekistan, using ALOS satellite data. *Geomatics, Natural Hazards and Risk*, 7(3), 1081–1098.
- 10 Avezov, M.M. (2024). Physical geographical basis for the formation of the names of mountain glaciers in Uzbekistan and the problem of transcription of glacionyms (using the example of glacionyms of the Piskom basin). *Bulletin of the L.N. Gumilyov Eurasian National University. Chemistry. Geography. Ecology Series*, 147(2), 81–91. <https://doi.org/10.32523/2616-6771-2024-147-2-81-91>

Information about the authors

Avezov Mukhriddin Maksud ugli — PhD in Geography, Associate professor, National University of Uzbekistan named after Mirzo Ulugbek, Tashkent, Uzbekistan; e-mail: muxriddin_avezov@mail.ru; ORCID ID: 0009-0002-7918-3921

Jumayev Fazliddin Uktamovich — Independent researcher, Geography teacher at secondary school No. 39 of the Altynsay district of the Surkhandarya region, Surkhandarya, Uzbekistan; e-mail: jumayev_fazliddin@mail.ru; ORCID ID: 0009-0006-2430-5206