

Characteristics of International Relationship with the Main Facilities of the Formation and Activity of Mountain Glaces in Uzbekistan



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ANNOTATION: This article examines the relationship between the geographical distribution and formation of mountain glaciers in Uzbekistan and the importance of the location and development of existing mountain glaciers along the base surfaces.

KEYWORDS: Geomorphology, Tianshan, Tekesh, Zarafshan, Turkestan, Surkhandarya, Piskom, Kashkadarya Bodoksay, Ikhnachsay, ancient mountain glaciers, hydrological flow, river, territory, valley, base, snow line, moraine, erosion, relief, river.

During its long geological development, the territory of Uzbekistan, as a result of complex tectonic processes, forms the relief of the desert, hills, mountains, highlands and has a unique orographic system. In the high parts of the mountains (above 3500 m) glaciers are formed along the cryogenic zone. Because in the natural geographical conditions of Uzbekistan, the snow line passes at altitudes of about 3300-3500 m. However, such heights are very small in the country. For this reason, mountain glaciers are formed along the Western Tianshan, Gissar and Main Gissar mountain ranges of Uzbekistan. Nurata and Turkestan, parts of the Zarafshan ridge belonging to the territory of Uzbekistan are relatively low, so despite the presence of perennial snow cover, there are no glaciers.

The distribution and location of mountain glaciers in Uzbekistan on the basis of geomorphological laws is primarily reflected in the orographic structure of the region, and is closely related to the order of the base surfaces of the secondary zone.

Basis surfaces are understood to be areas of hydrological flow accumulation formed according to the order of the erosion of the river, the streams that make up the rivers. Therefore, the surfaces of the base (Latin meaning basis - basis - Geological Dictionary, Volume I, 1955) form different orders depending on how large the river valleys cover in different areas and the deep traces of erosion cuts. Glaciers also play an important role in the formation of these orders at the points where cryogenic regions are present [2, p. 507]. Because the formation of hydrological flow is directly related to the presence of glaciers for such areas. For the northern and northeastern regions of the Piskom, Surkhandarya and Kashkadarya valleys, it was found that there are four orderly base surfaces. This means that mountain glaciers and their derivatives are formed in close connection with these base surfaces. This situation manifests itself in the form of a specific geomorphological law, and the areas where the processes of erosion, transport and accumulation of mountain glaciers occur are clearly distinguished by the order of the base surfaces.

The isobasites delimiting the primary order surfaces cover areas adjacent to high-altitude watersheds and watersheds, which are conducive to the formation of mountain glaciers in Uzbekistan, including firn fields, tops of glaciers, and sometimes deaf glaciers. As mountain glaciers are actively developing erosion work across these areas, relief views formed under the influence of glacial erosion, such as circuses, deaf, curling, have been widely developed. This means that the first-order base surfaces are the main areas of formation and active development of erosion of mountain glaciers, and it is distinguished by the richness of relief views formed by mountain glaciers.

The second-order base surfaces form the middle parts of the surfaces and the deep erosion grooves - the main parts of the streams. The relief typical for these regions, bordered by secondary isobasites, is so complex that the effects of neotectonic movements are clearly felt. However, against the background of tectonic movements, we can observe that the relief phenomena caused by the activity of mountain glaciers also play a leading role in the overall geomorphological structure of the region. In particular, the fact that the rivers are mostly sticky - the beginning of the troughs, as well as the fact that the bottom of the trough valleys is covered with many moraine deposits - acquires a unique landscape. Behind the mound of moraines are often accumulated water basins, which are a characteristic feature of the upper parts of almost all trough valleys of small-sized moraine lakes. Even in the recent geological periods, when paleocryogenic conditions prevailed throughout the region, it can be understood

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that the secondary areas of the base surfaces were involved as part of the active transport activities of mountain glaciers. This is because the trough valleys form several stepped surfaces, in which moraine grooves, sometimes still scattered longitudinally, further complicate the relief. For example, this situation has been repeatedly observed in the field of our observations in the field along the upper reaches of the Onalgansay, Urungachsay, Kaptarkumush, Bodoqsay rivers in the Piskom river valley.

The isobasite curve bounding the tertiary base surfaces ran along the lower parts of the mountains. Because these areas are located at some distance from the geographical points where mountain glaciers currently exist, glacial landscape landscapes across these areas are much rarer, and their impact is significant. In particular, traces left by ancient glaciers are common, such as moraine mounds, moraine lakes, which have been developed along the classical level of trough valleys, excursion tracks, trog mats and sometimes even tubers. The main feature of the tertiary base surfaces is that the volume of moraine mounds formed along the surfaces can be seen to be several times larger than that of the moraine mounds formed at the top of the valleys. We observed this situation in the field of our field research in Bodoksay, Urungachsay, Ikhnachsay. As a result, as the size of moraine assemblies increases, so does the size of the moraine lakes formed there, and several large moraine lakes, such as the Upper Urungach (not the Lower Urungach because the Lower Urungach basin genetically belongs to the dam family), are formed. Although all of these lakes have been recognized as dam lakes by A.M. Nikitin [5, p. 106], the results of our field research acknowledge that they belong to the group of moraine lakes [5, p. 106]. This is because the huge moraine deposits brought by the Paleomoids blocked the Bodoksay, Urungachsay, and Ikhnachsay rivers, and behind them large reservoirs were formed. The current flows through the granular-moraine deposits. In particular, the size of the ancient glaciers, which formed in the upper reaches of the Bodoksay, Urungachsay, Ikhnachsay, and reached their middle streams, shows how large they are now, and modern mountain glaciers, which are now located only along the first order of the base surfaces, and these areas formed the transport and accumulation zones of ancient glaciers. Epigenetic valleys have sometimes been formed in these areas, as moraine mounds have blocked the valley, eroding rocky layers from the side of the stream and forming a new valley. These cases are characteristic of cryogenic regions and play an important role in the geomorphological structure of the region, emphasizing the distribution of glaciers on the basis of natural geomorphological laws [6, 98 p].

The base surfaces of the fourth order cover the lower parts of the lateral rivers, the areas that form their points of confluence with the Oygaing, Kashkadarya, Topolangdarya. The "trace" of glacial processes in these areas is very rare. In particular, at the confluence of the Maidontol, Turtogayni, Beshtor, Koksuv, Tekesh rivers with the Moon, and even in the Sarijoyak plain formed at the confluence of the Oygaing and Maidontol rivers, the accumulative activity of the Paleomoids is clearly visible [8]. At the points noted, it is possible to observe the irregular scattering of large-sized erratic rocks along with the piles of paleomoras. All of this suggests that in ancient times, due to the size of the mountain glaciers and the cold paleoclimate, the glaciers "fell" to the areas covering the fourth-order base surfaces at that time, these surfaces appear as accumulation zones of Paleomoic. The direct impact of mountain glaciers is evident along the landscapes of the areas occupying the fourth-order base surfaces. These include low annual average temperatures, high precipitation, hydrological flow density, diversity of flora composition, and the presence of a separate area of rare species growing at high altitudes, such as acacia, Turkestan spruce.

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