



Peculiarities of high-altitude landscapes formation in the Small Caucasus mountains

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Various mountain systems differ in character of landscapes and soil.

Basic problem of present research: conditions and parameters determining the development of various landscapes and soils in mountain areas.

Our research object is the area of Armenia where Small Caucasus, a part of Armenian upland is located. The specific character of the area is defined by the whole variety of all mountain structures like fold, block folding mountain ridges, volcanic upland, individual volcanoes, and intermountain depressions. As for the climate, the area belongs to dry subtropics. We have studied the peculiarities of high-altitude landscapes formation and mountain river basins development. We have used remote sensing data and statistic database of climatic parameters in this research.

Field observations and landscape pictures analysis of space images allow distinguishing three types of mountain geosystems clearly: volcanic massifs, fold mountainous structures and closed high mountain basins - area of the lakes.

The distribution of precipitation according to altitude shows some peculiarities. It has been found that due to this factor the investigated mountain area may be divided into three regions: storage (fold) mountainous area; Ararat volcanic area (southern macro exposure); closed high mountainous basin-area of the lake Sevan.

The mountainous nature-climatic vertical landscapes appear to be horizontally oriented and they are more or less equilibrium (stable) geosystems, where the stable functional relationship between the landscape components is formed. Within their limits, definite bioclimatic structure of soil is developed.

Along the slopes of fold mountains specific landscape shapes like litho-drainage basins are formed. They are intensively developing like relatively independent vertical geosystems.

Mechanism of basin formation is versatile resulting in formation of the polychronous soil mantle structure.

Landscapes and soils within the basin are of a different age, since the permanent exogenic processes favor regular rejuvenation of the slope soils. The basin structure determines the soilscape, and morphological elements of the basin are also different. The factors playing the significant part in the formation of soil-mantle composition in the basin can be identified.

It is shown that landscapes formation and soil structure in mountains are controlled by two superimposed natural processes, i.e. the formation of vertical zonality and the development of river lithodrainage basins.

References

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