

MUDFLOWS PHENOMENA IN THE PIEDMONT AREAS OF UZBEKISTAN

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ABSTRACT

In this paper the conditions of mudflows appearance in the mountain and piedmont areas of Tashkent Region (Chirchik-Akhangran River Basin) and Fergana Valley of Uzbekistan, where mudflows are very high activity in that territory of the country are considered. Mudflows may pass from March till August in these areas. 145 events of mudflows in the period of 1950-2009 had been checked. The notion "case" means a day when the phenomena was observed in many rivers and tributaries, which were located in the different parts of Chirchik-Akhangran Basin. It should be noticed that majority of mudflows are formed by the falling of intensive precipitation with shower character.

Mudflows represent major threat to the human life and objects of human activities along with other rock-destructive processes such as landslide, collapse, snow avalanches etc.

Prediction of mudflows in the piedmont and mountain areas, as a prediction of passing of mudflows in a concrete basin is one of the important tasks of the service of the warning the dangerous phenomena of the nature.

Mudflows prediction with prevailing shower factor is based on radiosonde data. Unfortunately, there was reduction of the radiosonde network in Uzbekistan, so it was necessitated to apply to other sources of information, especially satellite images of cloudiness and radar observations.

Nowadays for the prediction of different meteorological elements including heavy precipitation, thunderstorms and hail the satellite images and radar observations are broadly used.

For analysis of mudflows situation five-year data which had been received by radar and satellite observations was used. While the analyzing of situation the following characteristics of radar observations were noticed:

- monthly average height of the cloud base, particularly in the period of April-June;
- fluctuation of height of the upper bound of radar-echo of convective clouds;
- vertical extent of convective clouds;
- maximum height of clouds in days with mudflows.

Specific characteristics of convective clouds by satellite data, such as:

- synoptical process and type of cloudiness according to the satellite images;
- brightness data of cloudiness on visible and infrared spectra;
- dimension of cloudiness by latitude and longitude (especially the hearth of Cb);
- direction of cloudiness movement at 500 hPa Geopotential were identified.

In the result an ensemble of representative parameters which included the defined category of mudflows phenomena was produced. Meanwhile the range of specific parameters which, in particular, deals with intensive mudflows processes that causes the extensive damage to the economy was explored.

The research enabled to work out a very short-range forecast 3-5 hours in advance, the application of which in a practice could allow minimizing of damage caused by intensive mudflows.

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