



Mapping of debris-flow catchments and developing of the Northern Caucasus debris-flow catchments database for investigation of climate impact on debris-flow activity.

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In many countries debris-flows are the most significant landslide hazards owing to climate change and deforestation. The impact of climate on debris-flow activity is still not cleared. The climate changes can modify some parameters of debris-flow catchments especially such as vegetation, deposits distribution, permafrost, debris-flow genesis and debris-flow return period. As a result of these changes the relationships between the characteristics of debris-flow activity and climate parameters found for a single debris-flow catchment under current climate condition will not be applicable for the future. This is the reason why for researching of climate impact on the debris-flow activity the developing of the complex database including the significant quantity of debris-flow catchments from different geographical regions is required. The such database and the set of the appropriate maps for the Northern Caucasus debris-flow catchments have been developed in the Laboratory of snow avalanches and debris-flows of Lomonosov Moscow State University. The map of debris-flow catchments at a scale of 1:200000 lies in the basis of this database. The long-term field observations, analyze of publications and unpublished data have been used for the map creation. It has been determined 967 debris-flow catchments. Five levels of debris-flow activity have been defined. Debris-flow activity level is an integrated characteristic of debris-flow recurrence and volume of mass transport. The database contains the following information concerning the debris-flow catchments: morphology and parameters of currents, mean debris-flow recurrence, typical volumes of mass transport and rheological characteristics, debris-flow genesis, the sets of calendar date of debris-flow events with descriptions; the data about lithology, deposits, climate, vegetation, per-

mafrost and glaciations. The database is supported by the map of lithology of the rocks regarding to weathering and erosion processes at a scale of 1:1 000 000. The rock complexes have been divided into 3 groups depending on the firmness against denudation. The map of the vegetation zoning depending on the counter-erosion conditions is also presented. In conclusion, the described map and the database can serve as inventory basis for a debris-flow monitoring and future investigations in the Northern Caucasus region.