



## **The account of natural risks in GIS for recreational activity**

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The consideration of recreational potential of a territory as a perspective place for leisure along with other factors is connected with the nature riches, its recreational attractiveness. Recently the modern condition of the natural-recreation information is characterized by low level of scientifically proved estimation criteria of natural components, absence of the natural risks information. In connection with the catastrophic tsunami which has occurred at the end of 2004 in region of the Indian ocean, a question on the information of recreational activity becomes especially actual.

The created GIS: a) carries out functions of a system which controls bases of the geomorphologic and hydrometeorological data, b) is a source of the authentic geoinformation in recreational potential of territory, c) forms a basis for decisions - an objective choice of a tourist product. The structured information on an estimation of natural risks and attractive properties of recreational potential of regions is kept as a cartographical database. This GIS consists of three sections: 1) Digital maps, 2) Attributes of digital maps (a legend, digital palettes et al.) 3) Bases of the initial geomorphologic and hydrometeorological data for a regional resource estimation. The cartographical database is created on the basis of Mapinfo Professional 7.0 and is represented as hypertext documents which will be accessible through a WEB-server to inquiries of users.

For the created GIS the information level named « Recreational areas » should be basic with division into individual districts. It reflects historically developed traditional structure, recreational activity in concrete region and can form a basis for representation of the information on an environment and resources. Natural components of the GIS are as follows: 1) a relief, 2) coastal sea waters, 3) the air environment in

troposphere. All of them also represent elements of recreational system and are the contents of the cartographical database which are built on a level « Recreational areas », consisting of the information blocks, named "Relief", "Ocean", "Atmosphere". Each information block represents system of cartographical layers as a set of geomorphologic, climatic and other maps.

Each information block contains the information on natural risks, their probable periodicity, intensity. For example, in information block " Relief " these risks are represented by earthquakes, volcanic activity, dangerous landslides, avalanches et al.). Information block " Ocean " contains the most dangerous dynamic factors for recreation (the maximal wind height, storm floods, tsunamies, upwelling, surf zones).

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