Relief and quality of life in cities

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Relief controls the course of some atmospheric, hydrospheric, technical and engineering processes in cities. Thus relief has influences on urban life quality. We studied this effect on a quality of life by some sides of urban environment — sunshine duration in residential zones, wind field in urban sites with complex terrain, noise propagation from roads in relation with the terrain profile. Moreover, landform’s pattern is prerequisite or obstacle to organization of effective ecological framework, drainage system and other. At last, geomorphologic hazards has important effect on quality of life. Our research is based on the different data types: field data from works in several cities of European Russia; published data of geomorphological and ecological researches in Russian and foreign cities; poly-scale topographical information; building and urban zoning information open sources; urban climate data. Quantitative estimation of geomorphologic effect on the some sides of urban environment shows that this effect is expressed by values around 5-30% from nominal (project) values of appropriate physical values. In the cities of hilly plains (for example, Kursk, Voronezh) in mid-latitudes the duration of sunshine have deviations between project and real values on 5-10%. The simulation of wind flow in city canyons with terrain base and without it shows that wind speed can differ by the value 30%. The noise propagation from highways over hilly and anthropogenic created terrains has a less effectiveness than noise propagation over flat or scyphiform terrains on values before 20 dB(A) on length of 20 m from road. The definition of the «geomorphological comfortability» is offered. The study partially was supported by RFBR, research project №14-05-31010мол_а.