

Digital Elevation Profile: A Complex Tool for the Spatial Analysis of Hiking Trails

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Abstract: One of the current attributions of mountain geomorphology is to provide information for tourism purposes, such as the spatial analysis of hiking trails. Therefore, geomorphic tools are indispensable for terrain analyses. Elevation profile is one of the most adequate tools for assessing the morphometric patterns of the hiking trails. In this study we tested several applications in order to manage raw data, create profile graphs and obtain the morphometric parameters of five hiking trails in the Căpățâni Mountains (South Carpathians, Romania). Different data complexity was explored: distance, elevation, cumulative gain or loss, slope etc. Furthermore, a comparative morphometric analysis was performed in order to emphasize the multiple possibilities provided by the elevation profile. Results show that GPS Visualizer, Geocontext and in some manner Google Earth are the most adequate applications that provide high-quality elevation profiles and detailed data, with multiple additional functions, according to user's needs. The applied tools and techniques are very useful for mountain route planning, elaborating mountain guides, enhancing knowledge about specific trails or routes, or assessing the landscape and tourism value of a mountain area.

Key words: *geomorphic tool, mountain route, morphometric parameter, mountaineering, Carpathians.*

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