

INFLUENCE ON THE TERRAIN TOPOGRAPHY ON THE VULNERABILITY OF SOMEȘ MIC MEADOW

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Abstract. Topographical study provides relief conditions and land cover, which makes precision engineered marking works. Draw the vertical plane and the different locations and routes given slope is carried out by methods which are chosen depending on the plotting of the pitch.

Keywords: vulnerabilty, meadow, topography, slope

INTRODUCTION

Tilting meadow is from SW to NE, being erected near the track. The general slope is 2.6 ‰ to 8 ‰ near the river near the slopes.

Somes Meadow is characterized by a low gradient, 0.4 to 1 ‰ oriented river and valleys created by splitting water discharges its bordering slopes and numerous abandoned riverbeds. Low slope surface drainage is insufficient. In the meadow, under the horizon soil, sand and gravel saturated meet at 1-1.5 m, reaching thicknesses of 6-8 m in the contact layer clay hills where achieve up to 3 m thick, the slope increases up to 6 ‰, facing the river.

MATERIAL AND METHOD

Slope map (Fig. 1 and Fig. 2) was made based on digital elevation model and is expressed in degrees, with a high influence on the way of development of hydrography, by influencing the speed and direction of flow and the degree of erosion of soil. Are witnessing low meadow slopes Somes Mic and lower terraces and their emphasis in the upper terraces and old terraces.

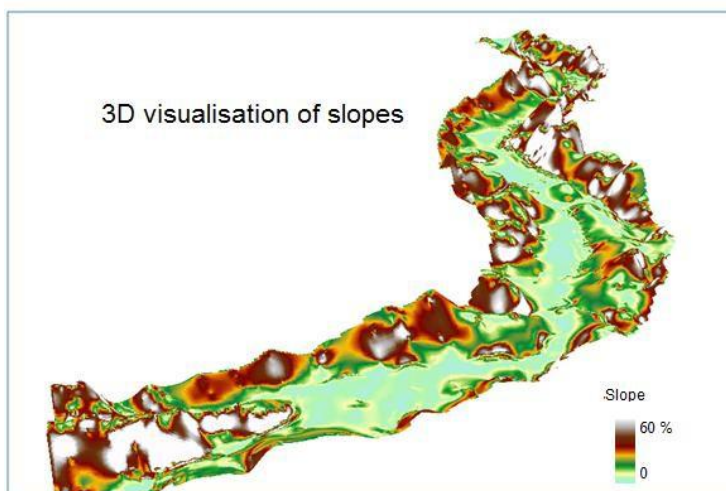


Fig. 1. 3D visualisation of the slopes map

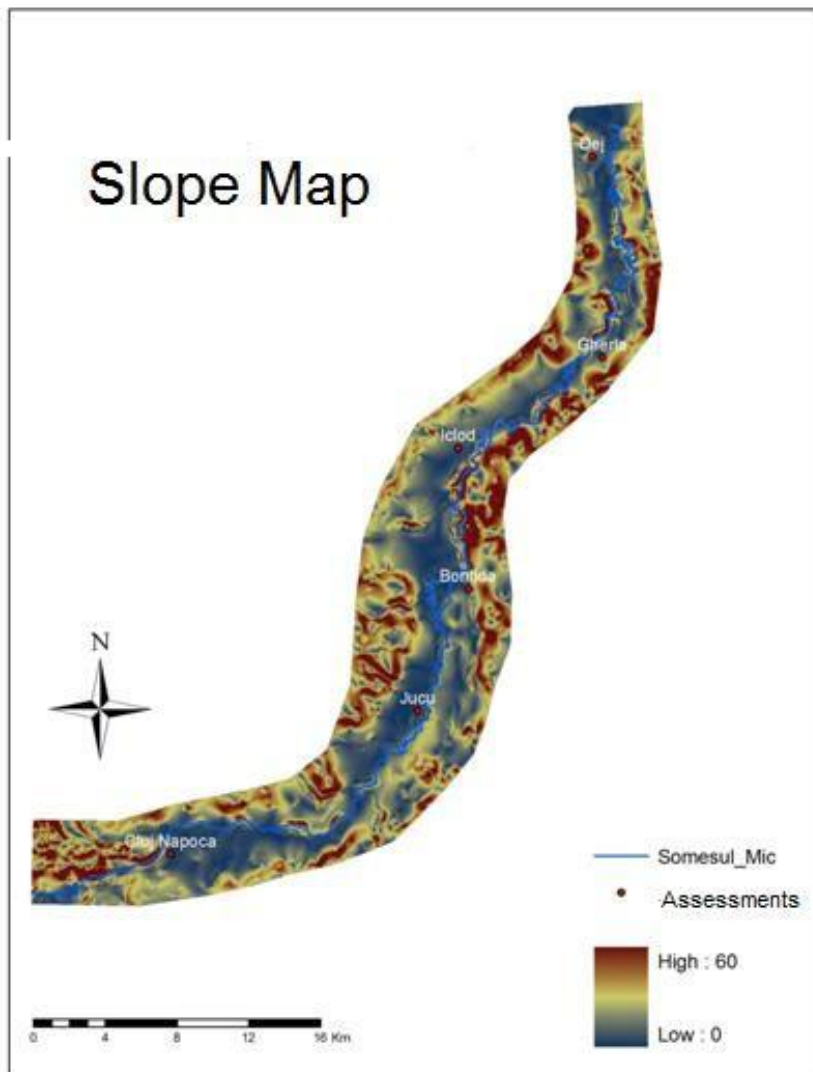


Fig. 2. Slope map for Someșul Mic between Cluj-Napoca and Dej

RESULTS AND DISCUSSION

TIN model lies at the basis of the contour map attribute whose quota is taken. A TIN model is highlighting an area to observe the layout of relief, realizing altimetry mark as reality. Note on the map in figure 3 the differences in altitude of the valley Someș Mic decreasing from upstream to downstream embankments reinforced.

Based on the dimensions and routes agricultural roads, canals, streams were able to determine topographic trace elements: rectangular coordinates (X, Y), distances, angles, levels (Z), level differences, gradients, lines time slopes.

Slope orientation map (Fig. 4) was performed using digital elevation model using the compass as a guide. The targeting of slopes highlights the amount of radiation received, the shutter of the area in the shaded resulting in varying degrees of humidity.

Also influence the amount of precipitation reaching a certain area, climate issues directly affecting the hydrology.

Slope orientation influences excess moisture, the duration of exposure and the amount of solar radiation received at the same time having a decisive role for the choice of crops, agro-technical point of view but also for the prevention and control of soil erosion.

The study of orientation and slope is particularly important to determine the direction of water flow through registration of precipitation, or from the point of view of determining the excess water from the surface of the soil and the ground water flow direction of the slope given by the orientation of the slopes.

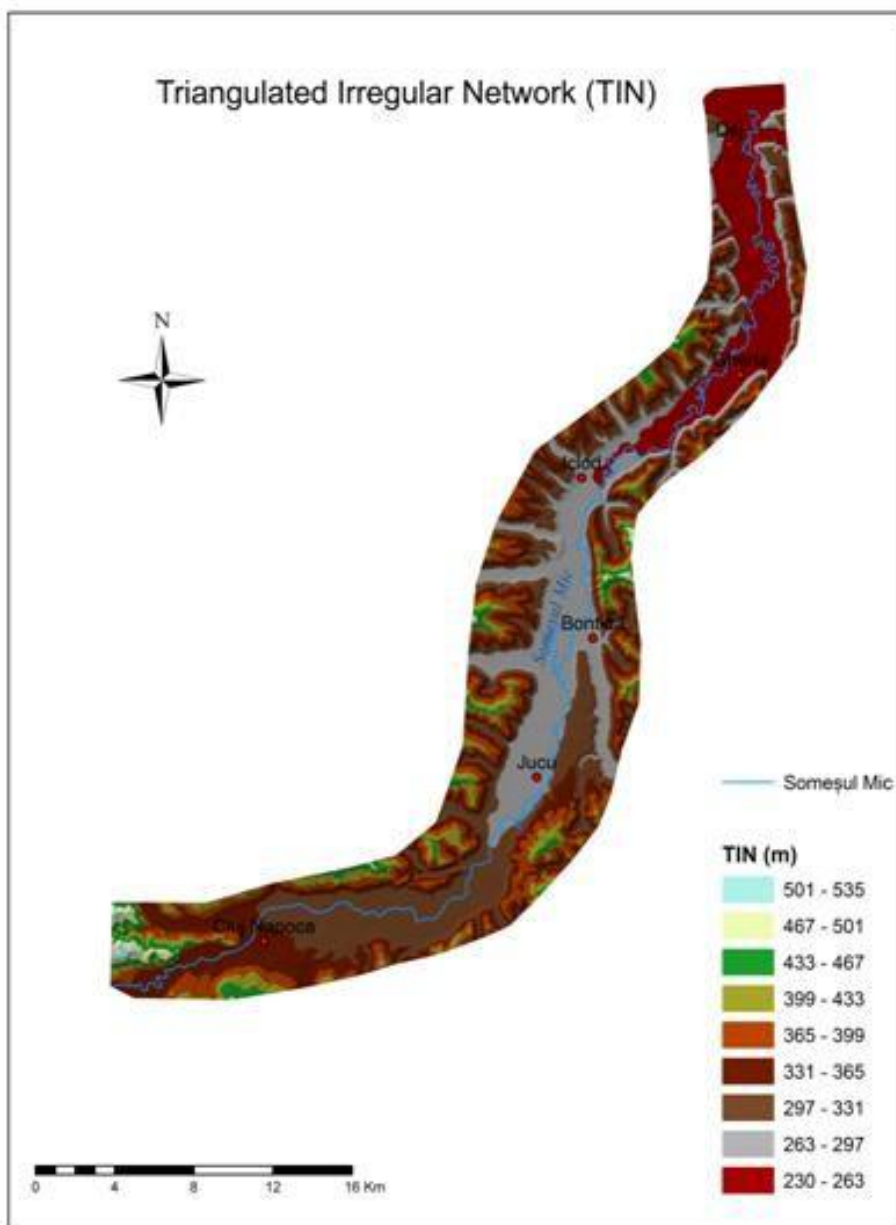


Fig. 3. TIN model

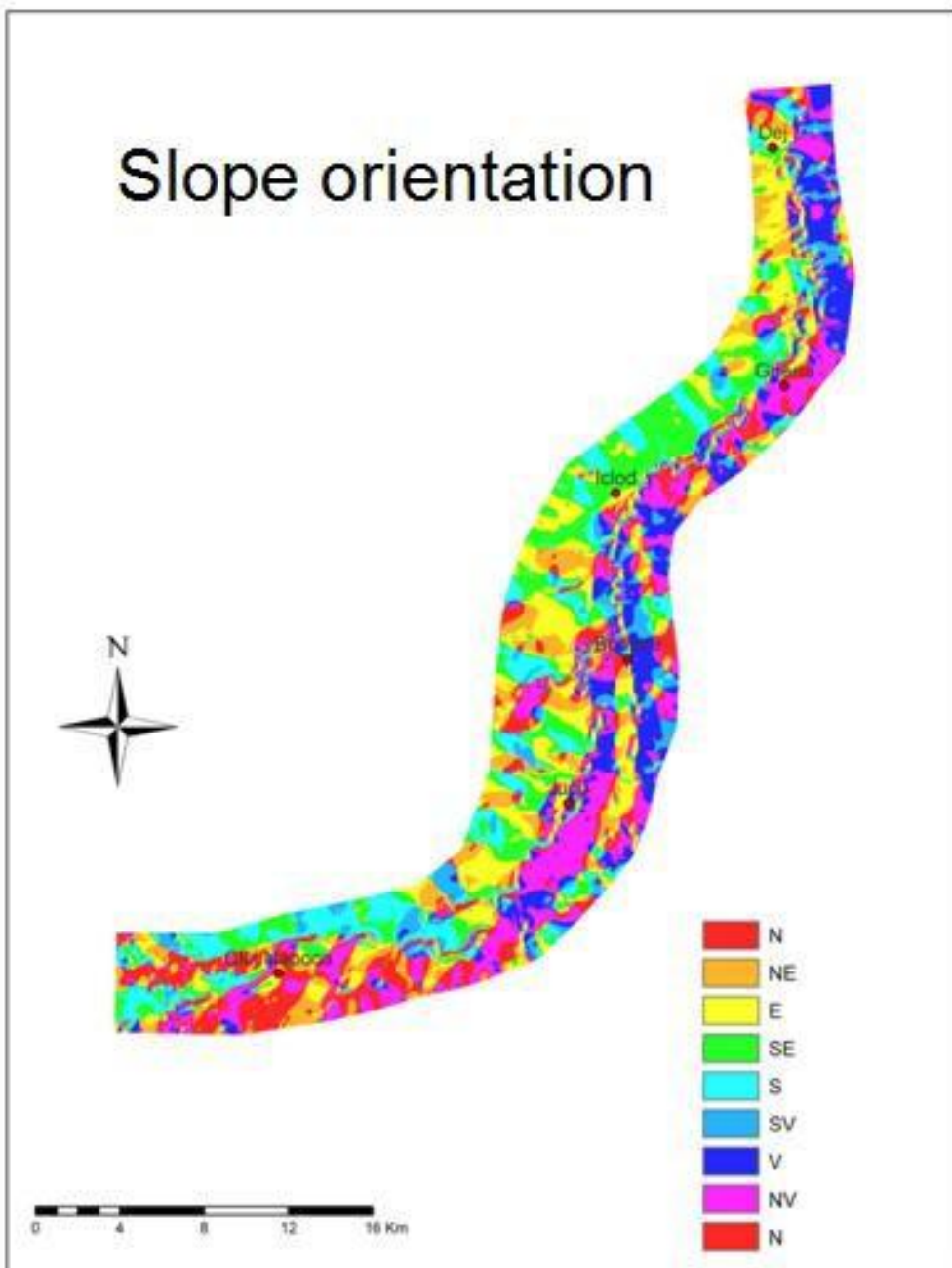


Fig. 4. Slope orientation map for Someșul Mic between Cluj-Napoca and Dej

CONCLUSIONS

Using the GIS technique in the study of the influence of terrain topography on the vulnerability of Someș Mic meadow help represent these influences using complex and suggestive thematic maps of the area of interest.

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