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QUANTIFICATION OF SOME ELEMENTS OF DRAINAGE BASINS IN ROMANIA

ABSTRACT: GRECU F., Quantification of some elements of drainage basins in Romania. (IT ISSN 1724-4757, 2004).

This paper debates on the major variables of drainage basin dynamics in the morphogenetic conditions of mid-latitude zones. The present study proceeded from Horton-Strahler’s hierarchy of drainage basins. As revealed by the complexity index, the confluence ratio of large basins developing in varied relief forms, is different.

The higher order of magnitude, the better balanced a basin is, and reversely, the smaller order of magnitude, the greater its imbalance. It seems that the 4th-5th order basins are best suited for a dynamic geomorphic analysis. Basins originate mainly from 1st-order stream segments.

The coefficient that synthetically defines the dynamics of drainage basins \( I_r \) (completion index) stands for the number of stream segment, as well as for other variables, eg. length, surface and perimeter of drainage basins, and is it given by the progression ratio: \( I_r = 1 \) equilibrium (100%); \( I_r < 1 \) (<100%) = undersized; \( I_r > 1 \) (>100%) = oversized.

The index of stream completion refers to the grade of basin completion in accordance with its order of magnitude, depending, in its turn, on the overall number of stream segments. The index of stream length completion shows the extent of basin completion in point of lengths (both for summed lengths and for average lengths).

The analysis focused on 19 basins lying in mountain zones, on crystalline or Mesozoic-Paleogene schysts, and 12 basins located in hills and tablelands, on Mio-Pliocene sediments.

Statistically-processed data suggest the following: the completion index of the number of segments taken into consideration reveals undersized basins as a rule; the other variables registering a statistically homogeneous population.

A correlation was established between the completion indexes referring to the number of river segments and lengths. The optimum correlation was found to be the linear one, i.e. 0.70.

KEY WORDS: Drainage basin, Order of magnitude, Length, Completion index, Mountain, Hill, Romania.

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