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TYPES OF SLOPES IN THE TRANSYLVANIAN DEPRESSION (Rumania)

ABSTRACT: JOSAN N., *Types of slopes in the Transylvanian Depression (Rumania)*. (IT ISSN 0391-9838, 1996).

The Transylvanian Depression is the largest depressionary area inside the Carpathian Mountains. After the basin stage (Upper Cretaceous-Lower Neogene), in parallel with the withdrawal of the Pliocene lake waters and the depletion of erosion levels, sub-aerial modeling began. In this new stage several types of slopes appeared: cuestas, structural surfaces and complex slopes formed in concordance with the geological structure, the Quaternary bioclimatic conditions and the direction of rivers.

KEY WORDS: Slope evolution, Types of slope, Transylvanian Depression, Rumania.

RIASSUNTO: JOSAN N., *Tipologie di versanti nella Depressione Transilvanica (Romania)*. (IT ISSN 0391-9838, 1996).

La Depressione Transilvanica è la più vasta area depressionaria dei Carpazi. Fra il Cretaceo ed il Neogene Inferiore essa fu un bacino marino e successivamente ospitò laghi pliocenici, a seguito dello svuotamento dei quali, con l'abbassamento del livello di base, iniziò la fase di erosione subaerea. In questo nuovo stadio apparvero diversi tipi di forme, quali cuestas, superfici strutturali e versanti complessi formati per concordanza fra struttura geologica, condizioni bioclimatiche quaternarie e direzione delle aste fluviali.

TERMINI CHIAVE: Evoluzione dei versanti, Tipologie di versanti, Depressione Transilvanica, Romania.

GENESIS AND EVOLUTION OF THE RELIEF

The Transylvanian Depression lies in the central part of Romania, inside the Carpathian arch. It is actually the greatest depressionary area inside the Carpathian Mountains, lying at altitude of 450-700 m and having a relief energy of 100-300 m and a density of fragmentation of 0.50-1.75 km/km². The area is dominated by friable sedimentary formations and presents a visible trend of maturity due to intense slope processes to landslides in the first place. Therefore, a study of slope types and evolution is

extremely interesting both from a theoretical and practical viewpoint.

The evolution of the Transylvanian Depression relief is marked by two major stages: the basin stage and the sub-aerial modelling stage.

The Basin Stage

The Transylvanian Depression was formed by the non-uniform sinking of a huge Carpathian area. The shaping of the depression began during the Upper Cretaceous after the structural elements of the Eastern Carpathians, the Apuseni Mountains and the bottom of the depression had been fixed during the Alpine Orogenesis. Geophysical, magnetometric and seismometric investigations have proved that the crystalline bottom of the depression had sunk unevenly, with three high crystalline steps being distinguished between 1 000 and 3 000 metres, separated by areas maximum submersion (sinking) where the crystalline lies between 5000-8000 m deep (CIUPAGEA & alii, 1970).

The crystalline basement is covered by thick sedimentary deposits superposed during five sedimentation cycles: Senonian, Paleogene, Burdigalian, Baddenian - Sarmatian and Pliocene, the last two being particularly important for the morphology of the Transylvanian Depression. The sedimentary deposits of the Transylvanian Depression belong almost entirely to the Neozoic, characterized by uniformity facies. These neritic low depth epicontinental sea deposits consist especially of marls, diorite sands, clays with intercalations of volcanic tuffs.

In point of tectonics, the Transylvanian Depression falls into three zones:

- at its North-Western and Northern and Northern Fringes, the zone in which the Paleogene is developed, the deposits a slightly dipping monocline (5°-15°) towards the centre of the depression;
- inwards there is an area of diapir folds occasionally, with outcropping salt cores;

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