

MIHAELA DINU (*)

THE RELATIONSHIP BETWEEN LANDSLIDES AND SLOPE EVOLUTION IN THE VÂLCEA SUBCARPATHIANS, RUMANIA

ABSTRACT: DINU M., *The relationship between landslides and slope evolution in the Vâlcea SubCarpathians, Rumania.* (IT ISSN 0391-9839, 1996).

The Vâlcea SubCarpathians are an example of a hilly region on the outer part of the Carpathians where many types of landslides can be observed. The old generation of landslides of Pleistocene age covers a large area. The present generation is the outcome of natural factors and anthropic activity. Usually both of them work together for changing the slope profile.

KEY WORDS: Landslides, Slope evolution, Vâlcea SubCarpathians, Rumania.

RIASSUNTO: DINU M., *Il rapporto tra frane ed evoluzione dei versanti nei SubCarpazi di Vâlcea, Romania.* (IT ISSN 0391-9838, 1996).

I SubCarpazi di Vâlcea sono un esempio di regione collinare della parte esterna dei Carpazi, dove si possono osservare numerosi tipi di frane. La più vecchia generazione di frane, di età pleistocenica, copre una vasta area. La generazione attuale è il risultato dell'interazione fra fattori naturali ed azione antropica. Generalmente le due generazioni contribuiscono insieme al cambiamento del profilo del versante.

TERMINI CHIAVE: Frane, Evoluzione dei Versanti, SubCarpazi di Vâlcea, Romania.

INTRODUCTION

The hilly region between the Topolog and the Bistrița Vâlcei rivers, which goes by the name of the Vâlcea SubCarpathians (fig. 1-A), is part of the SubCarpathians, a major relief unit in this country, featuring by the sharpest slope dynamics in Rumania. A subdivision of the Getic SubCarpathians, the region is well represented in the present relief. It evolved within the drainage basin of the Olt River, which together with lithology and structure, stamped a specific modelling style.

The constitution of rocks in this SubCarpathian sector reveals the whole succession and diversity of the Getic De-

pression sedimentary deposits, from the Eocene to the Villafranchian. The strips of these deposits, extending down to the Getic Piedmont in the South, are of variable width and increasingly younger age (fig. 1 B). The Neogene molasse formations form a monocline with a Southward inclination, gradually folding toward the central part of the Getic Depression. Major tectonic lines, running almost parallel to the margin of the Carpathian crystalline bloc, are Est-West oriented.

Landforms stretch up from 200 m (at the junction of the Bistrița and the Olt rivers) to 1,067m (Fața Mare Hill), the amplitude being 867 m. Slope declivity is often under 45° on marly-clay-sands and over 45° on conglomerates and Eocene sandstones. Because marly-clay and sandy-clay rocks are prevalent, mass movements are quick to develop, the Vâlcea SubCarpathian slopes undergoing a rapid evolution. Such an evolution is enhanced by a young landscape (outcropping of Mio-Pliocene structures from under the Villafranchian piedmont cover), which subjects landforms to continuous change in an attempt to adjust to the geological structure (BADEA & BALTEANU, 1982). The neotectonic movement, of different rate and intensity, which continued from the Quaternary to the Present, had permanently stimulated slope modelling, contributing along the time to the evacuation of materials from drainage basins.

The morphoclimate of the region is rich in precipitations which, during May-June (frequently in association with snow melting), accumulate in the porous formations, thus triggering (with a lagtime) landslides.

LANDSLIDES AND SLOPE EVOLUTION

Landslides represent the main category of mass movements, being particularly well-represented in the SubCarpathian region. They are the main feature of the present-

(*) *Institute of Geography, 70307 Bucharest (Rumania).*