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RICOSTRUZIONE DI SEQUENZE MORFOEVOLUTIVE NEI PICENTINI MERIDIONALI (Campania, Appennino Meridionale) (***)

Abstract: CAPALDI G., CINQUE A. & ROMANO P., *Geomorphological and neotectonic evolution of Picentini Mts. (Southern Apennines, Italy).*

The Monti Picentini massif is one of the largest and more interesting morphostructural units of Southern Apennines. It corresponds on a roughly rectangular horst (of some 37 by 25 km), that rises of several hundred meters above the surrounding hilly landscape where terrigenous units of Miocene age outcrop. Since the latter are much more erodable than the Mesozoic carbonatic rocks forming the massif, the height of the marginal fault scarps appears often increased by differential erosion. This phenomenon is particularly common and relevant along the eastern and north-western sides of the massif, which also correspond on flanks of ancient structural depression, whose soft terrigenous infilling went eroded upon the neotectonic phases of uplift of the axial zone of chain.

The tectonic events that strongly influenced the long and complicated geomorphological evolution of the Monti Picentini can be divided into two groups: those that occurred before, and those that occurred after the modelling of a relatively much mature erosional landscape (herein referred to as *Paleosurface*). This *surface* have had a polycyclic genesis: the early phases of modelling may date as back as the Late Miocene (i.e. they were contemporaneous with the last compressive events of the Apenninic orogenesis), while the last periods of planation were probably synchronous with the first moderate episodes of extensional tectonism (Late Pliocene and Early Pleistocene).

The present paper deals with the tectonic and geomorphological events that shaped the present landscape of the Monti Picentini after the modelling of the *Paleosurface*; i.e. during the following period of strong and fast vertical displacement herein labeled «Neotectonics».

Notwithstanding the complete lack of Pleistocene marine deposits it was possible to identify and to put in order three distinct phases of neotectonic deformation. The fault scarp that were created by the first phase are easily distinguished from the younger ones for their greater maturity. The high relief they created in the area (a dense network of scarps, some of which up to 500 m high) primed the production of huge conglomeratic deposits, both within the massif (outcrops of Iumaiano, Montenero, Rotundo, La Mola, Faito) and along its southern piedmont (*Conglomerati di Eboli Auct.*). The facies of those conglomerates are of talus and alluvial cone in the intra-mountain depres-

sions and of alluvial fan, braided river bed and alluvial plain in the piedmont area.

The first generation of detrital deposit is restricted to the southern portion of the Picentini massif which is composed of highly fractured dolostones and dolomitic limestones. In the northern portion of the massif, dominated by almost pure and less fractured limestone, karstic modelling prevailed on the fault-blocky landscape created by the first tectonic phase.

Once the deposition of the first generation of conglomerate had stopped or almost so, a second period of block faulting occurred (second neotectonic phase). It was characterized by smaller throws than the first phase (generally less than 200 meters), a much lower number of faults (broad sectors of the massif moved *in toto*), and a new increase of the average elevation of the massif with respect to the surroundings. The throw of said dislocation was generally in the order of one or two hundred meters.

Along the southern piedmont of Picentini Mts. the thick and extensive Eboli formation went locally broken and tilted by faults. Also within the massif the conglomerates of first generation appear sometime cut by fault scarps of the second tectonic phase.

Another period of a tectonic quite followed in the area. It was accompanied by erosional processes (such as slope decline, broadening of valleys cut into fractured dolostones, and karstic planation within tectono-karstic depressions) producing localized gentle landscapes (*Ripiani erosionali*) which are often cut also on the conglomerates of first generation (Rotundo, Varco Sellara, Castello di Olevano). Probably in the same period, an erosional *glacis* developed on the Eboli formation.

In a few places into the massif the second tectonic phase was followed also by deposition (lacustrine and fluvio-lacustrine in Tizzano basin, alluvial in the Grottelle valley).

Finally, we recognized a third neotectonic phase which again moved a few lines within the Picentini massif (the tectonic lake of Acerno was born and the Picentino River valley deepened). In the piedmont area, the erosional *glacis* cut on the Eboli formation was fragmented into blocks and raised up to 400 meters a.s.l. An uplift of a greater amount affected the nearby Picentini Mts. where the remnants of the gentle erosional landscape (*Ripiani erosionali*), initially bevelled to the above said *glacis*, are now to be found at 600 to 1100 m a.s.l.

Said increase of relief caused, among others, the headward downcutting of the deep canyon of the Tusciano River through the Mt. Raione block which resulted in the capture of Acerno's lacustrine basin (about 0.35 M.y.B.p.).

The results of the first absolute datings ($^{40}\text{K}/^{40}\text{Ar}$ on pyroclastic intercalations of the 150 m thick lacustrine sequence) allowed us to estimate that the creation of Acerno's lake (i.e. the third neotectonic phase) occurred about 0.75 M.y. B.p. Since the tectonic events that created the lacustrine depression seem to have the same age of those which primed the fluvial dissection of the damming block, we conclude that the duration of the lake of Acerno corresponds on the time the canyon took to be eroded.

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(***) Pubbl. n. 20 del Dipartimento di Scienze della Terra, Università di Napoli. Lavoro eseguito con il contributo M.P.I. 60% (Resp. A. Cinque) nell'ambito del Progetto di Ricerca del M.P.I. «Morfoevolutiva».

Gli Autori sono grati al prof. Brancaccio ed alla dott. N. Santangelo per le proficue discussioni con loro avute tanto sul terreno che in fase di stesura del lavoro.