

INFLUENZA DELLA TETTONICA TRASVERSALE SULLA MORFOGENESI DELLE PIANURE ALLUVIONALI MARCHIGIANE

ABSTRACT: NANNI T. & VIVALDA P., *Influence of transversal Tectonics on the morphogenesis of Marche alluvial plains* (IT ISSN 0084-8948, 1987).

The formation of Marche alluvial plains has been conditioned by the Pleistocene tectonic evolution which has raised the Quaternary sequence from 200 to 500 metres above sea level. The different tectonic events which have influenced the present geomorphological setting of the river valleys, are schematically summarized below:

- A Plio-Pleistocene event when the collapse of the greater part of the area takes place and conditions of marine sedimentation are restored in the whole area. During this event the Quaternary basin was formed. It is characterized by an Apennine depression interrupted by structural highs oriented NE-SW and bordered by transverse tectonic lines. The morphological setting of the Quaternary basin has been inherited from the Pliocene tectogenesis.

- An event started in the lower Pleistocene, during which the area begins to rise. During Santerian the northern part of the basin (Cesano Basin) is completely emerged, while marine sedimentation continues in the southern part of the Quaternary basin (Chienti Basin). The northern edge of the latter one emerges during the pre-Crotonian and probably the same happens for the remaining basin. The raise of the whole area continues until the regressive deposits reach peaks of about 500 m above the main sea level.

The evolution of the relief and alluvial plains is mainly due to this tectonic event. The structural elements which have had the greatest influence on the morphological evolution of the alluvial plains are those with anti-Apennine direction. The main alluvial valleys follow transverse tectonic lines (fig. 4) which were already active during upper Miocene and which have conditioned both the development of the main fluvial system and the evolution of the relief. After all, the main rivers, during both Pliocene and Pleistocene, followed ways already marked by the transverse tectogenesis.

The alluvial plains follow the direction of the transverse tectonic lines which also mark the edges of the structural blocks or sectors (figs. 2, 3) whose northern margins generally correspond to the main high anti-Apennine structures that are raised more than the southern margins. Vertical movements and differential lifting took place along transverse faults. This has given the block a stepped structural setting similar to that found in a downward faulted system. In this case the movement is generally from North to South towards the alluvial plains. Therefore the alluvial plains are found between the two structural sectors, and their borders are limited by transverse tectonic lines. (figs. 3, 5). The phenomenon of the migration of the rivers towards the South in the intermediate part of the valley is recognized in all main river valleys; it should be linked up to the differential lifting (the northern border being lifted more than the southern) of the structural sectors due to the action of the transverse faults.

However, the migration of the rivers towards the North near coastal belt is linked up to the greater raising of the coastal anticlines in Apennine direction.

The recent lifting of anticlines is also shown by the smaller thickness of the recent alluvial deposits in the area of the plains corresponding to the axis of the coastal anticline (figs. 1, 2, 6). The migration and deviation of the rivers, is also documented in the alluvial deposits of the 4th order by the presence of «paleochannels». surveyed by geomorphological and hydrogeological. The migration of the rivers took place in recent times and this marks a quite intense tectonic activity, both recent and present. In recent times the effects of human activity have been super-imposed of those of Tectonics. This somehow masks the actual influence of tectonic factors on the erosive action of rivers and the consequent increase in the occurrence of landslides on slopes. However, it is not possible to supply reliable values for the degree of recent lifting on the ground of existing data.

RIASSUNTO: NANNI T. & VIVALDA P., *Influenza della Tettonica trasversale sulla morfogenesi delle pianure alluvionali marchigiane* (IT ISSN 0084-8948, 1987).

Vengono presentati i risultati delle ricerche condotte sull'avanfossa marchigiana che hanno consentito di riconoscere l'influenza primaria della Tettonica trasversale sulla formazione delle pianure alluvionali. I risultati di tali ricerche hanno permesso di verificare che:

- Le pianure alluvionali marchigiane sono impostate su linee tettoniche trasversali e pertanto, almeno le principali, sono da considerare valli di faglia.

- Le pianure alluvionali individuano settori strutturali delimitati da faglie trasversali nell'ambito dei quali si sono avuti sollevamenti maggiori del lato settentrionale rispetto a quello meridionale. I bordi settentrionali di tali settori corrispondono schematicamente agli attuali spartiacque dei bacini principali.

- L'attuale configurazione geomorfologica delle pianure alluvionali, e più in generale dell'area collinare marchigiana, è connessa con più fasi tettoniche pleistoceniche.

- L'asimmetria delle pianure alluvionali e la deviazione dei fiumi verso Sud nel tratto intermedio delle pianure, sono fenomeni dovuti a sollevamenti differenziati, guidati dalle faglie trasversali. La deviazione verso Nord nel tratto terminale di alcuni fiumi è invece connessa con il sollevamento differenziato, guidato anch'esso da faglie trasversali, di anticlinali costiere a direzione appenninica. Viene inoltre evidenziato come il fenomeno della deviazione dei fiumi sia documentato anche dai paleoalvei, riconosciuti nei depositi terrazzi di IV ordine, sulla base di indagini geomorfologiche e idrogeologiche. La persistente influenza della Tettonica sui processi morfogenetici recenti ed in particolare su quelli della dinamica fluviale è documentata anche da dati storici.

TERMINI CHIAVE: pianure alluvionali, Neotettonica, Marche.