

**Intermontane Basin in Central Italy: Implication for the Geomorphological
Evolution of Central Apennines.**

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The Italian peninsula is a NW-SE thrust belt, east and northeast verging, built since Neogene time; it is made up of carbonate thrust sheets and terrigenous sinorogenic deposits. Since Upper Pliocene the thrust belt has been displaced by extensional tectonics, related to a back arc basin opening in the Tyrrhenian sea. The Neogene-to-Present evolution has outlined a peculiar morphostructural setting of the chain: a series of ridges and valleys is related to the stacked thrust sheets; the formation of several intermontane basin, filled with continental deposits and arrayed in belts parallel to the chain axis, is related to the extensional tectonics. The intermontane basins evolution is due to local tectonic subsidence, to regional uplift and to exogenous processes; it has an active influence in the geomorphologic evolution at regional scale (drainage pattern geometry, drainage directions) and local scale (rock landslide and alluvial and talus fan). Intermontane basins analysis point out stratigraphical and chronological markers of the morphostructural evolution of the Apennines. We present the analysis of some of the main intermontane basins in Central Apennines (L'Aquila, Fucino, Subequano and Sulmona) and a possible landscape reconstruction in the last million year.

Keywords: Italy, Central Apennines, intermontane basins.

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**Morphostructural Elements of Central-Eastern Abruzzi
(Central Apennine, Italy)**

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The Apennine chain, in Central Italy, NW-SE oriented, results from the eastward migration during Neogene-Quaternary times, of a thrust belt system, that involved different palaeogeographic domains, both carbonatic and terrigenous. The building of the chain and its evolution has outlined different morphostructures. In this work we present the morphostructural elements of central-eastern Abruzzi (Central Italy), scale 1:250,000. The map has been carried out considering the different elements which have driven the geomorphologic evolution of the Apennine chain. Ridges, valleys and intermontane basins have been linked to their lithological features (Meso-Cenozoic carbonates, Neogene siliciclastic deposits, Quaternary clastic continental deposits); to tectonic elements, both inactive (thrust) and active (normal faults); to main morphological processes. The analysis and the comparison of all these elements permit to prove the strong influence tectonic structures exert on landforms.

Keywords: Italy, Central Apennines, morphostructures.

5th International Conference on Geomorphology**Form D****August 2001, Chuo University (Tokyo, Japan)****Abstract Submission Form**

Numbers of applied Session and/or Symposium

1st Choice: (7) 2nd Choice: (1) 3rd Choice: _____**A Study on Slope Failures due to Post-quake Rainfalls in Rokko Mountains, Kobe**T. OKIMURA¹ and N. TORII^{1*}¹ Research Center for Urban Safety and Security, Kobe University

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The Hyogoken-Nanbu Earthquake which took place on Jan. 17, 1995 (M7.2) caused more than 700 slope failures in Rokko Mountains, Kobe and more than 900 slopes failed additionally after the main shock till the end of Oct. 1995. In this study, firstly, topographic features of the slope failures due to earthquake and post-quake were investigated statistically by using topography map and Digital Elevation Model (DEM). Similarity and the difference in topographic features of those failures in different stages were described, and they were compared each other as well as with failures due to purely rainfall in the past. Secondly, we applied Dynamic Response Analysis to those slope failures at Gosukebashi area in Rokko Mountains to look into the mechanism of them. As a result, most of failed sites were independent of failed place appeared when the earthquake and the important factors for the occurrence of the post-quake failure caused by rainfalls were not only the maximum acceleration and strain during the earthquake but also the slope conditions such as gradient, the change of the inclination and the depth distribution of the surface soil layer.

Key words: Slope Failure, Post-quake Rainfalls, Topographical Analysis and Dynamic Response Analysis

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Deformation and Adjustment of Small Rivers Flowing Across Strike-slip Faults

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Experimental streams quickly adjust their longitudinal profiles when they are deformed by the horizontal displacement of strike-slip faults to maintain a continuous gradient by downstream incision and upstream deposition. If the fault displacement rate is low, experimental streams erode a fault scarp jutting laterally into the channel and take courses diagonal to the fault. If the fault displacement rate is high, the fault scarp remains and an offset channel with sharp bends develops. Once channel offsets form and streams adjust their longitudinal profiles, straightening the offset channel by lateral erosion becomes increasingly difficult. Offset streams measured in Japan have diagonal courses across strike-slip faults, but their longitudinal profiles show some irregularities through offset reaches. Resistant bedrock and vertical displacement may impede the adjustment of longitudinal profiles. Along the San Andreas fault, California, where it is much drier than in Japan, many channels are offset with bends at almost right angles and have irregularities in longitudinal profiles reflecting the fault displacement. The infrequent floods are probably unable to respond to the deformation by the highly active fault.

Key words: offset channel, strike-slip fault, longitudinal profile, flume experiment

**Characterisation of Recent Tectonic Elements Through the Analysis of
Morphotectonics Indicators**

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Geological and geomorphological evidence indicate that the arrangement of Central Apennine chain was conditioned by important transversal tectonic elements which are likely to have acted since Miocene, both in submarine and aerial conditions. These NE-SW tectonic elements seem to limit belts with different tectonic-sedimentary evolution. During Quaternary such transversal tectonic dislocations produced NE-SW elongated ridges, differently uplifted, and intermountain basins. The surface effects of these tectonic events are testified by the existence of displaced paleosurfaces, uplifted ancient alluvial terraces and by the complex configuration of drainage networks. Some of these lines are well known, some others are only supposed and of uncertain characterisation. The aim of this paper is to contribute to the individuation of these hypotesised tectonic lines, focusing particularly on their kinematics by means of the quantitative geomorphic analysis applied to paleosurface geometry, divide pattern and drainage network orientations.

Key words: morphotectonics, quantitative geomorphology, Central Apennine, Italy

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1st Choice: (16) Others2nd Choice:3rd Choice:**A Database of Drilling Logs for the Saitama Prefecture and
Analysis of Regional Characteristics**K. SASAKA*, S. HACHINOHE, H. SHIRAIISHI and T. MATSUOKA
Research Institute, Center for Environmental Science in Saitama, Japan

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The Center for Environmental Science in Saitama possesses about 20,000 drilling logs collected during drilling operations at construction works, earthquake exploration, etc. In order to promote safe and proper land use that harmonizing with the ground environment, we implemented a database to store drilling logs in Saitama Prefecture, Japan. ADEG (Analytical Database System of Saitama for Environmental Geotechnology) is not only a database system for geological information but also an analytical system for some regional parameters, such as liquefaction and earthquake ground motion characteristics, etc. Furthermore, we can also discuss relationships between geomorphology and geological structures in the shallow layers using this database.

Key words: drilling log, database, liquefaction, earthquake ground motion

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