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A new chronology of upper Holocène aeolian sands in the Zibans range ,Algeria

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The existence of a transatlasic aeolian system through the eastern Saharian Atlas point out massive migrations of mobile sands from the High Plains in the North, to the Sahara desert to the South and confirm that in Algeria, there is not a progression of desertification from the Sahara toward the North. The age of these sand displacements is ancient and dates back to the upper Pleistocene and the Holocene. A new chronology of upper Holocene, supported by 12 new datings 14C indicates variations of arid periods and humid periods.This new chronology caracterise an evolution stage since 4 000 BP marked by the rapidity of paleoenvironments instabilities during the upper Holocene period through the Zibans range with the development of four sequences : a humid phase during 3 300 – 3 000 14C yr BP ; an arid phase during 2 900 – 2 500 14C yr BP ; a humid phase during 2 400 – 2 200 14C yr BP ; an arid period between 2 200 and 1 650 14C yr BP dominated by incision of rivers where man's role became more and more higher. The present day remobilisation of sands doesn't justify an aridification of the climate.

Key words : Holocene paleoenvironnements, aeolian morphogenesis, desertification, upper Holocene chronology, eastern Algeria.

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Long Term Geomorphologic Evolution of the Mekele Area (Eastern Tigray Highlands, Northern Ethiopia)

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The geomorphologic evolution of the eastern Tigray highlands starts with an extensive planation surface which truncates the Precambrian igneous-metamorphic basement. This surface is covered by horizontally layered Paleozoic sandstones, deposited in a dry environment, within which glacial sediments are found. The continental deposition followed during the early Mesozoic with the Adigrat sandstones. In the Giurassic, marine ingression reached the area from the south-east, causing the emplacement of a thick sedimentary sequence (Hintalo limestones, Agula shales). After a subsequent regression (Cretaceous?), a second planation surface cut the area and a new continental sequence (Amba Aradam formation) was deposited. This latter is overlaid by Tertiary (Trapp) basalts. The previous sequences are intruded by dolerite sills and dykes. The late Tertiary uplift of the Ethiopian highlands induced the incision of deep valleys, along which the presence of horizontal stiff layers, slowing up linear erosion, caused the alternation of wide sectors, with pediment-like sides, and narrow gorges.
Key words: long-term geomorphologic evolution, valley morphology, Ethiopia

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Uplift, Erosion and Gravity on Central Apennines Belt (Italy).

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This morpho-structural and morpho-dynamic study, concerning a large portion of Central Italy (Umbria, Marche and northern Abruzzo regions), aims to give a contribution on reconstructing landscape main stages, structuring ways and evolution (well-know on their principal lines), since the emersion of the apenninic belt occurred during Messinian on western portion (Umbria). Basing on lithostratigraphic, sedimentological and geochemical data of plio-pleistocene marine and continental units and on quaternary and pre-quaternary geomorphological elements, (mainly represented by relict or fossil portions of ancient erosional surfaces and of erosional and/or depositional glacis, by terraced alluvial deposits and by large landslides and gravitational deep-seated slope deformations), on attempts to define the average rate of Plio-Quaternary uplift in the study area and its single sectors, and the erosional and geomorphological instability related processes, also concerning the strong Plio-Quaternary climatic variations.

Key words: uplift, erosion, gravitational phenomena, Pliocene-Pleistocene, Central Italy.

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Historical Evolution of Slopes in Agricultural Landscape

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The predominant part of the Myjava Hill Land (Western Slovakia) is specific with the relatively short-term interference of man. The territory was settled in two stages between the 14th and 19th centuries. The detailed geomorphic investigation, study of historical data, chronicles of local authorities and churches, as well as interviews with older farmers enabled us to identify individual stages of slope evolution arrangable into two groups.The stages of the 1st group were characteristic by the predominance of linear water erosion, they were bound with climatic fluctuations with extreme rainfalls in the course of the Little Ice Age. The stages of the 2nd group were typical with the predominance of areal water erosion (accompanied with tillage erosion), they were linked with the periods between climatic fluctuations. The geomorphic effect of linear erosion in the past is the dense network of permanent gullies. The response of long-term areal erosion and tillage erosion is the lowering of slopes and ridges with different evolution of slope portions cultivated along contours and gradients.

Key words: historical data, agricultural landscape, gullies, slope lowering, erosion

About the History of Relief Development of the Central Part of Russian *Plain in* Neogene-Quarternary

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The litological-mineralogical analysis of 11 sections of sediments of Upper Oka basin (central part of Russian Plain) of glacial and fluvial origin of the Late Cenozoic has been done. It has been found that sediments from ancient rivercuttings have alluvial, lake and proluvial genesis and Middle-Late Pliocene age (N_2^{2-3}). The modern river valleys partly inherit the ancient valleys and are partly shifted from them. In Early and Middle Pleistocene (Q_{1-2}) the territory of Russian Plain was under the influence of several glaciers. The litological-mineralogical data testify that some glacier relief forms are not of Moscow age (Q_2^2) as it was shown before but are more ancient (Q_1pk, Q_1dn, Q_1ok). Litological-mineralogical composition of glacial and fluvial-glacial sediments of glacial epochs and alluvial-proluvial sediments of interglacial stadials showed that during the Early Pleistocene (Q_1pk, Q_1dn, Q_1ok) glaciers have moved to the South-West from Ural and New Land Island. Younger glaciers of Moscow age have, probably, moved to the South-East from Fennoscandia basing on the magmatic and metamorphic rock fragments found. The data obtained could be of wide use for the applied geomorphological investigations.

Key words: mineralogy, Neogene-Quaternary, sediments, glacial relief, fluvial relief

Layer Chronology of Young Stalagmites

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A young active growing stalagmite was collected from Water Cave in 1998. Along with the growth axis, four sub-samples were dated with TIMS-^{230}Th technique, the ages of them are 139±43, 383±33, 613±46 and 929±70 year. A test was taken between the second and the third dating points before counting the layers, for there are three different layer orders in the stalagmite, three orders of layer were counted respectively. The first order contains 131 layers, the second order is 389, and the last order 220. Considering dating result, we recognize that the last order is annual layer. According to the test result, we count the annual layers from the top to the four dating sub-samples. The result is 107-124, 393-402, 602-619, 940-952, which is consistent to the ^{230}Th age. Then we advance the concept of Stalagmite Layer Chronology, in which we can define the age of the undated stalagmites by counting the continuous precipitated annual-layers from its top.

Key words: young stalagmite, TIMS-^{230}Th dating, layer order, annual layer, Layer Chronology