Haţeg Island". In order to defend the pattern he identified, he attempted to outline the spatial extension of this island, as supported by the distribution of illustrative non-marine sedimentary deposits. In this context, he discovered several new localities with dinosaur-bearing rocks. Among these, the most important ones are located in the Alba-Iulia area. These faunal assemblages seem to be coeval with those from the Haţeg Basin. The non-marine Maastrichtian deposits from Alba County accumulated after the Late Cretaceous "Laramian" tectogenesis, when a fluvial system evolved in the area of the present-day Carpathians. As a matter of fact, the sediments exposed in Alba County suggest similar environments to those from the Haţeg Basin. In the red mudstones and the channel sandstones of the Şard Formation, several vertebrate teeth and bones have been preserved. In this paleobiota, dinosaurs are well represented by the following taxa: titanosaurian sauropods, the basal hadrosaurid *Telmatosaurus transsylvanicus*, the euornithopod taxa *Zalmoxes shqiperorum* and *Z. robustus*, the nodosaurid ankylosaur *Struthiosaurus transylvanicus*, as well as various small theropods. Besides dinosaurs, there are crocodilians (Allodaposuchus and Doratodon), turtles, and lizards. Fishes, amphibians, birds, and multituberculate mammals are other vertebrates making up this assemblage. More often than not, the remains are fragmentary, scattered and weathered, except for those preserved within sediments of lacustrine origin.

Reverse fault system Cenade-Ruşi-Veseud, effect of the Carpathian tectonic phases

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The Transylvanian Basin is surrounded by the Apuseni Mountains, the Eastern Carpathians and Southern Carpathians. It has a roughly circular shape with Upper Cretaceous to Upper Miocene sedimentary fill reaching in some place up to 8 km in thickness. It is a post-tectonic basin and represents a typical back-arc basin starting to the Upper Miocene. Geological and geophysical data show that the sedimentary cover of the Transylvanian Basin has formed during at least seven sedimentary cycles: Permian – Triassic, Jurassic – Lower Cretaceous, Upper Cretaceous, Paleogene, Lower Miocene, Middle – Upper Miocene and Pliocene. Structural elements of the Transylvanian basin basement belong to the Inner Dacides, Transylvanides and Median Dacides resulted from subduction and collision processes, especially collision between the Foreapulian block and Getic block during to the Austrian tectonic phase (Albian Collision) and pre-Gossau phase. These compressional tectonic phases have generated in the Transylvanian Basin the north-south overthrust lineaments with an eastward vergence by extensional reactivation of old structures from Middle Triassic-Lower Cretaceous (normal system faults generated by the Thetysian spreading processes). Later, the Carpathian tectonic phases (Laramian, Old Styrian, New Styrian, Moldavian and Wallachian Phase), recorded, especially, in the Eastern Carpathians through the emplacement of the other Carpathian nappes (Outer Dacides, Moldavides) contributed to the thrust reactivation, some with the appearance of the new structural elements, northwards tilting of the pre-Miocene basement, basin subsidence, uplift and erosions in the Transylvania Basin.

An example on this way is the system of Cenade-Ruşi-Veseud reverse faults, which is a result of the Wallachian tectonic phase (Pliocene/Quaternary). The Middle Badenian Salt Formation overlies the Cenade-Rusi uplift and this uplifting was generated by the thrust Laramian tectonic phase. The system of Cenade-Ruşi-Veseud reverse faults was activated at the beginning of the Pliocene and it was ruled by a combined tectonokinetic-halokinetic mechanism. The structural map with isochronous (TWT) of the top of Salt Formation shows that fault has a sinuous trend with three segments: the Cenade is on N–S direction, the Ruşi segment becomes NW-SE orientated, and the last segment, the Veseud has a WNW-ESE trending with eastward vergence and affect sedimentary deposits, including Pliocene deposits. Along this system, the Badenian Salt Formation has a column diapiric shape. Due to the very high uplift of Eastern Carpathians which occurred in the Late Miocene-Pliocene (about 4 km uplift and continues to the present day) and higher Upper Badenian-Pliocene sedimentation rates (recorded in the Eastern and Central parts of basin) combined with the Pliocene-Quaternary uplift of the Apuseni Mountains and the presence of the some strike-slip faults developed a pushing pressure of the Salt Formation toward the center and southwestern parts (salt sliding) of basin with the initiation of these reverse faults. Coevally with the Pliocene uplift of the South Carpathians (considerate as rigid fix block for the Miocene-Pliocene sediments of the Transylvanian Basin - after this uplift) were developed normal faults in the southern part of this basin, parallel to the orogen and evolution of the Cenade-Ruşi-Veseud reverse system faults don't stop, it is still activate.

Comparison of characteristic and Gutenberg–Richter models for time–dependent M≥6.0 earthquake hazard in the Corinth gulf, Greece

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Earthquake forecasts have always been a difficult task because they can be affected by uncertainty in terms of the most appropriate model and the involved parameter values. The application of two quite different models to the same seismogenic area was explored. The first belongs to the category of the renewal models, based on the characteristic earthquake hypothesis, the necessary ingredients of which being historical or paleoseismic recurrence times, and a fixed geometry for the faults. The hazard rate so obtained is then modified by the inclusion of a permanent effect due to the Coulomb static stress change caused by failure of neighbouring faults that occurred since the latest characteristic earthquake on the concerned fault. The second model consists of a very simple earthquake simulator, which can be described by parameters taken from two data input classes, fault slip rates and adoption of a Gutenberg–Richter magnitude–frequency distribution. This information is commonly available even if historical and paleoseismic recurrence data are lacking. The intention is to develop and assess a simulator that has a very limited parameter set, which has the benefit of reducing and quantifying uncertainty. We apply both methods along the Corinth gulf extension zone, a place that is rich with observations of strong–earthquake recurrence behaviour, to assess their relative forecast applicability. We find that use of slip rate as a primary constraint allows the simulator to replicate the pattern of observed segmented rupture rates along the Corinth seismogenic zones. As they evolve through time, our rupture simulations preferentially fill slip gaps, enabling estimates of time–dependent segment recurrence. We conclude that very simple earthquake rupture simulations based on empirical data and fundamental earthquake laws can be useful forecast tools.

Along arc geochemical variations in hydrothermal activity in the South Aegean Volcanic Arc: ancient and modern

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Submarine hydrothermal mineralization occurs in at least five locations in the South Aegean (Hellenic) Volcanic Arc; from west to east of Methana, Milos, Santorini, Kos and Nisseros/Yali. Manganese and iron enrichments in seawater and marine sediments are sensitive indicators of the presence of this hydrothermal activity and are sometimes the only