Formation of Hakkari-Çukurca area (southeastern-most Anatolia, close to the border with Iraq). One specimen shows an almost complete oral surface, whereas the other one exhibits a typical lower surface. These two specimens are the oldest fossils of echinoderms ever reported so far from Turkey, and the first record of *Stromatocystites* in this part of the world. From a palaeobiogeographic point of view, the new Turkish fossils are particularly interesting, as they occur in a peri-Gondwanan region intermediate in latitude between western (Bohemia, Newfoundland, Spain) and eastern (Australia) occurrences of *Stromatocystites*. The morphology of the two Anatolian specimens is apparently closer to *S. pentagularis* (Bohemia, Newfoundland, Sweden), than to *S. flexibilis* (Bohemia), *S. reduncus* (Australia), or *S. walcotti* (Newfoundland). The occurrence of *Stromatocystites* in southeastern Turkey is in good accordance with the Mediterranean-Acado-Baltic affinities observed for other faunal elements reported from the same area (e.g., trilobites). It also confirms the existence of regular faunal exchanges, and thus the palaeogeographic closeness, of Baltica and various peri-Gondwanan regions in middle Cambrian times. As a consequence, future field work in the middle Cambrian of Hakkari-Çukurca area will possibly yield additional echinoderm taxa typical of Mediterranean-Acado-Baltic regions, as for example the eocrinoid *Cigara* and/or the stylophoran *Ceratocystis*, which both occur along with *Stromatocystites* in both Bohemia and Sweden.

Some remarks on the biostratigraphy and paleoecology of the Middle Miocene Machów Formation (Carpathian Foredeep, Poland)

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The Polish Carpathian Foredeep Basin (PCFB) is the northern part of a large foreland basin system that surrounds the Carpathian orogenic belt. Like other foreland basins, the PCFB is asymetric and filled mostly with clastic sediments of the Miocene age up to 3,0 km thick at the Carpathian front and to few hundred meters in the northern marginal part. Molasse deposits of the PCFB, underlain by the platform basement, dips southward underneath the Outer Carpathian napes to a distance at least 50 km. The PCFB is subdivided into two sub-basins: the inner and outer ones, located respectively south and north of the Carpathian frontal thrust. The outer sub-basin is composed of Middle Miocene autochthonous marine strata. The Miocene succession is subdivided into three formations: the Skawina Fm- sub-evaporitic, Wieliczka/ Krzyżanowice Fms.- evaporitic and the Machów Fm- supra-evaporitic. The last one is predominantly represented by siliciclastics sandstones and shales couplets. The age of this formation traditionally was assigned as Late Badenian and Early Sarmatian on the basis of foraminiferal research mainly. Our studies of the Machów Fm were concentrated in the eastern part of the PCFB, north of the Rzeszów. In this area we collected samples from five boreholes, in following depth intervals: S-2 (Stobierna): 1016-1338 m; S-3: 715-1669 m; S-4: 1016-1238 m; SB-1(Stara Brzóza): 350-356 m and 1043-1667 m; P-2 (Pogwizdów): 1161-1390m. The uppermost (above 350 m) and lowermost (beneath 1669) part of Machów Fm. was not studied because of the lack of core material. The aim of the study was to provide the biostratigraphic and paleoecological analyses for the Machów Fm. For this purpose smear slides from all collected samples were prepared using the standard method, and analyzed under light microscope Nikon Eclipse E600POL (LM, 1000x magnification) at normal and crossed nicols. The qualitative analysis were carried out for all the samples whereas the quantitative analysis only for the chosen boreholes S-3 and S-4.The obtained biostratigraphic data gave evidence for the upper part of the NN6 (the Early Sarmatian) and for the NN7 (the lowermost part of the Late Sarmatian) Zones. The whole sections investigated in S-2, S-4 and P-2 were classified to NN6 Zone. In S-3 interval 1669-1113 m was assigned to NN6, whereas section 843-715 m to NN7 Zone. In SB-1 interval 1667-1043 m belongs to NN6 Zone, interval 350-356 m was classified to NN7 Zone. The *Discoaster exilis* Zone (NN6) was defined by the presence of *Reticulofenestra pseudoumbilica, Sphenolithus abies*, *Helicosphaera walbersdorfensis* and absence of

Discoaster kugleri. Besides the listed species, the typical association of this zone was also represented by freguently occuring *Coccolithus pelagicus*, *Cyclicargolithus floridanus*, *Helicosphaera carteri*, *Sphenolithus moriformis* and *Umbilicosphaera rotula* and sporadically observed *Calcidiscus leptoporus* and *Calcidiscus premacintyrei*. The *Discoaster kugleri* Zone (NN7) assignment was based on the abundance of *Coccolithus miopelagicus* (>10μ), used as an alternative species essentially confined to that interval, and absence of *Catinaster coalithus*. The NN7 Zone is difficult to distinguish because of absence or scarce abundance of significant marker species such as discoasterids and *C. coalithus*. The paleoecological preferences of nannoplankton species in S-3 and S-4 were considered in regard to temperature and nutrient availibility (trophy).The enrichment of *C. pelagicus* and *C. floridanus* in sediments could indicate the nearshore eutrophic environment with high nutrient levels in surface water and upwelling paleoconditions. To upwelling-prefering group belong numerous *H. carteri* and small *Reticulofenestra*. The scarcity of discoasterids, which are more common in open ocean assemblages, could confirm shallow and coastal paleoenvironment as a negative indicator however its distribution depends on paleogeographical settings. It occurs much more often in Mediterranean area than in Paratethys. Deposition near the coast and relatively shallow water depth could result in high percentage of reworked specimens, which prevails over autochthonous ones in most samples from S-3 and S-4 boreholes. The percentage of autochthonous specimens is less than 50% and fluctuates between 40-50%. Reworked material, of the Cretaceous and the Paleogene age, comes from the south, from eroded Carpathian orogene.

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Study of time dependent earthquake occurrence in Greece: Relationship between seismicity rate changes and stress transfer and implications for time dependent seismic hazard assessment.-

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The relationship between changes of seismicity rate and static Coulomb stress is investigated at different sub–regions of the broader Aegean area. Seismic activity is studied at specific areas of interest, which are characterized by intense seismic activity and strong earthquake occurrence, known from both historical and instrumental data. The division of the area is based upon seismotectonic criteria, considering the regional kinematic properties, local seismicity and the available fault plane solutions. Coseismic stress changes are modeled and along with the tectonic loading are taken into consideration for stress change calculations. Data used for modeling contain events with magnitude greater or equal to a threshold magnitude, M_c, separately identified for each sub–region and time period. Simulations are done considering either the influence of aftershocks or declustered data. The spatial distribution of seismicity is translated into earthquake probability for both the observed and expected seismicity rates, by the application of a probability density function (PDF). Statistical process requires a normal grid superimposed on the study area. Spatial variable model parameters are calculated and then are linearly interpolated at the center of each cell of the normal grid. The dimensions of the cells are chosen in regard with the epicentral location error and the size of the catalog, such that a sufficient number of events being present in each cell and a realistic estimate of seismicity rate is done. Different values of model parameters are tried, with their limits being defined by physical and observational constraints, in order to test the sensitivity of the model in their fluctuation. Values for which results are closer to the observations are considered to express better the physical conditions and processes of the regional tectonic regime. Qualitative and quantitative correlation between the observed and the expected seismicity rates provide a test for the validity and sufficiency of the model.