steepened carbonate ramp which developed rimmed carbonate platform on the northern part of the Vértes ridge. Coral reefs were grown on the platform margin dividing the fore and back reef facies.

Syn-sedimentary structures, and the bioperforated fault planes with striae permitted the approximation of middle Eocene stress field. The compression was oriented (W)NW-(E)SE, while the tension was perpendicular. The compression is perpendicular to the general trend of the local paleo-topographic features and might have induced gentle folding of the pre-Tertiary basement. Elevated ridges (antiforms) were colonised by carbonate-producing organism, and carbonate ramps formed on their fringes, along NE-striking monoclines. Depressions (synforms) were covered by slightly deeper water and trapped fine-grained siliciclastic detritus. The orientation some of the normal faults and sedimentary dykes were perpendicular to the compressional direction in the early stage of the middle Eocene tectonic processes. These structures are due to local upwarping and bending of the pre-Tertiary basement during the early stage of folding.

The observations are in agreement with the model of Tari et al (1993) about the compressional (retroarc) origin of the basin. Thickness difference may suggest that the Vértes antiform was slightly asymmetric and had a very minor SE vergency. Such suspected asymmetry is part of the model of Tari et al. (1993) and was documented in the neighbouring Buda Hills (Fodor et al. 1992). On the other hand, the local structural geometry is more complex than a single reverse fault or monocline. The E-W to NW-SE trending strike-slip and normal faults cross-cut the antiforms and seem to be more important in the localisation of the sediment traps. Alternatively, they represent structures post-dating an early phase of folding.

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Do You Separate Sets of Reactivated Faults Manually?

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Faults are brittle structures which are formed as the response to stress in the upper crust. Due to variation of the tectonic stress field in time, faults are frequently reactivated in subsequent stress phases. The fault-slip data set is heterogeneous if the slips recorded on the fault planes occured in multiple tectonic phases with different stress fields. The principle of inverse method in paleostress analysis is to find an optimal stress tensor by using fault-slip data measured in deformed rocks. But to use the inverse technique a homogeneous fault-slip data set is required, which means a group of faults activated only in one specific tectonic phase. The stress calculated by applying the inverse method on heterogeneous data does not characterize the real stress situation.

A new computer program was made to identify individual paleostress phases and to determine paleostress tensors from heterogeneous fault-slip data. The possible stress tensor solutions are calculated from the orientation of the fault planes and from the striations and sense of slip. The fault-slip data are combined into four-element groups and the reduced tensor (e.g., shape and orientation of the stress ellipsoid) is calculated for each group. Group with four homogeneous fault-slip data provides the true results wich characterize the real paleostress conditions. The stress tensor calculated for heterogeneous four-fault group is not reliable. These results were visualized using lower hemisphere equal-area projection in which these true and false results can be easily distinguished. Projections of directions calculated from heterogeneous data sets – false results – are dispersed whereas the true results obtained from homogeneous data are grouped in clusters. In case of large number of fault-slip data analysed, the computer program is needed to identify the density of solutions. Density maximum indicates some of possible directions of considered principal stress. The number of such clusters represents a number of paleostress phases. The introduced software has useful application in the study of striated faults. Development of the program was supported by the grant project GA AVČR IAA3013406.