and seismic profiling, regional litho-stratigraphical relations and facies distribution are explained. Due to the geochemical prospecting and correlation the most perspective zones are de-fined. All the data will be presented by the slides and/or transparency and on the posters.

A new model on the tectono-sedimentary evolution of southwestern Pannonian basin during the Late Miocene

Marco Sacchi[1], Orsolya Magyari[2] and Frank Horváth[2]

[1]Geomare Sud Inst., CNR, Napoli, Italy
[2]Geophysics Dept., Eötvös University, Budapest, Hungary

A new model on the tectono-sedimentary evolution of southernwestern Pannonian basin during the Late Miocene is presented. This was based on the interpretation of about 190 km of high-resolution, single-channel seismic profiles acquired on Lake Balaton and about 1700 km of multi-channel reflection seismics in SW Hungary.

Seismic stratigraphic interprertation has been calibrated by geologic mapping of selected areas and well logs. A magnetostratigraphic record was also available from a corehole in the study area, together with recent K/Ar dating of basaltic rocks from the Balaton highland.

The Late Neogene "post-rift" evolution of Pannonian basin was characterized, in a broad sense, by decreasing rates of subsidence (thermal subsidence), parallel with the increase of sedimentation rates. This resulted in a classic trangressive-regressive 2nd-order cycle, with general progradational patterns, followed by late-stage aggradation in the basin fill.

Our study showed that higher-order cyclicity can be also recognized at a regional scale in the Late Neogene "post-rift" sequence of south-western Pannonian basin. In particular, five 3rd-order sequence boundaries (Sar-1 and Pan-1 to Pan-4 Sequence Boundaries) can be documented on regional seismic profiles. Sequence Boundary Pan-2 has a magnetostratigraphic age of about 8.5 Ma and is associated with significant water-level drop in the Pannonian Lake and consequent exposure of basin margins that is widely recorded in the "marginal facies" of western Hungary.

The stratigraphic unit bounded by Pan-1 SB and Pan-4 SB is correlated with the Tortonian-Messinian 2nd-order cycle of the Mediterranean.

Following the Middle to Late Miocene extensional phase, the Pannonian area has experienced a tectonic reactivation during Late Pliocene and/or Quaternary. This is manifested by accelerated subsidence at the basin center and faulting associated with uplift and extensive erosion at the basin flanks. Erosional truncation of strata due to late-stage uplift of the Bakony mountains is best imaged by regional seismic profiles across southern Transdanubia and high-resolution seismic profiles of Lake Balaton.

The Neogene Styrian Basin

Reinhard F. Sachsenhofer

Department of Geosciences, University of Leoben, Austria

The 100 km long, 60 km wide, and more than 4 km deep Styrian Basin is located at the eastern margin of the Alps and forms part of the Pannonian Basin System. It represents an extensional structure on top of a crustal wedge, which moved eastward during the final stages of the Alpine orogeny.

Basin evolution is subdivided into an early Miocene (Ottnangian to Karpatian) synrift and a middle to late Miocene postrift phase of subsidence. During the synrift phase thick clastic limnic/ fluviatile and marine sediments were deposited. The climax of extension during the synrift phase favoured the ascent of andesitic magmas. Today the voluminous shield volcanoes are nearly totally buried by younger sediments. An unconformity separates lower and middle Miocene sediments and is interpreted as the transition from the synrift to the postrift stage. During the postrift stage intercalations of sandy and shaly sediments and algal reefs were deposited. Basin inversion resulted in the erosion of a few hundred meters of sediment during the Pliocene and the Quaternary. Uplift was accompanied by a second volcanic phase producing basalts in Plio-/Pleistocene times.

The thermal history of the Styrian Basin was governed primarily by the Miocene magmatic event. Volcanic centers were characterized by extremely elevated heat flows (>300 mW/m^2) and heat flow decreased to background values (about 120 mW/m^2) at a distance of about 10 kilometers from the centers. After the early Badenian heat flows decreased and are in the range of 55 to 85 mW/m^2 since Sarmatian times. The volcanic activities in Plio-/Pleistocene times had only little influence on the regional heat flow pattern.

Subsidence analysis and the results of quantitative basin modelling suggest that the lithosphere beneath the Styrian Basin was extremely weak during Ottnangian-Karpatian times. This is probably due to high extension rates and high heat flows associated with Karpatian to early Badenian magmatic activity. Subsequent cooling enhanced the flexural rigidity. Depth dependant rheology models