Karbonate repräsentiert, überlagert von verschiedenen obereozänen Einheiten. An der Batinah Küste östlich des Oman Gebirges macht sich die Regression im unteren Eozän durch die eingeschränkte Fazies der Rusayl Formation bemerkbar. Diese wird von der offenmarinen, karbonatischen Schelffazies der Seeb Formation überlagert, die eine reichhaltige Alveolinen- und Nummulitenfauna beinhaltet. Westlich des Oman Gebirges ist die Rusayl Formation nicht entwickelt; die Jifnain Formation wird hier direkt von der Seeb Formation überlagert oder durch die faunistisch eingeschränkten Kalke und Mergel der Fahud Schichten.

NOLAN, S.C., SKELTON, P., CLISSOLD, B.P. & SMEWING, J.D. (1990): Maastrichtian to early Tertiary stratigraphy and paleogeography of the Central and Northern Oman Mountains. - (In: ROBERTSON, A.H.F., SEARLE, M.P. & RIES, A.C. (Eds.): The geology and tectonics of the Oman Region), Geol. Soc. Spec. Pub., **49**: 495-519, London.

Ophiodetritic flysch sediments in the Central-Carpathian Paleogene Basin (Eastern Slovakia): petrofacial composition, clay diagenesis and plate-tectonic provenance

BIRON, A. & SOTAK, J.

Geological Institute, Slovak Academy of Science Bratislava, Severna 5, 974 01 Banska Bystrica, Slovak Republic

Ophiodetritic sediments usually mark the zones of lithospheric subduction. Their occurrence is therefore important for geotectonic interpretation of orogenic belts, especially when the suture zones disappeared during the collision.

The flysch sediments in the northern side of the Central-Carpathian Paleogene Basin are significantly enriched in ophiolitic detritus. They even contain sediments, which represent the serpentinitic graywackes or detrital serpentinites. Serpentinitic sandstones occur as Zebra-type turbidites in the Upper Oligocene formations. Serpentinites form a colourless to olive green grains showing a typical mesh and loop structures. Among serpentinite fragments there are the coarse-flaky lizardites and fibrous chrysotiles as well. In petrofacial classifications, the serpentinites are attributed to the ophiolitic lithics (CRITELLI & INGERSOLL 1994) or to the volcanic-metavolcanic grain type category Lv (VALLONI 1985). Sandstones also contain a glassy shards and volcanic fragments with vitritic and vitrophyric structure. The proportions $Q_{25}F_8L_{67}$ express the average modal composition of the sandstones. The high content of detrital serpentinites and glassy clasts causes a prevalence of unstable lithic components (Lv = 62 %). Interstitial material of sandstones corresponds mainly to clay cement with minor pseudomatrix (crushed and altered lithic grains). Two distinct cement assemblages were observed: (1) saponite ± calcite ± dolomite ± opal-CT ± pyrite, which are restricted to quartz-rich graywackes, and (2) ordered mixed-layered chlorite/smectite + saponite ± calcite ± dolomite ± opal-CT ± pyrite characteristic for serpentinite-rich graywackes. Textural as well as compositional evidences suggest that both saponite and C/S originated by the interaction of the sediment with pore-fluids during burial as direct precipitates. It is inferred that a different bulk rock composition (Al content), and consequently, a different chemistry of pore-fluids played an important role during authigenesis.

In diagrams for determination of arenite provenances, the projection points of serpentinitic sandstones are concentrated in the field of magmatic-arc related sandstones (DICKINSON et al. 1983) or oceanic-arc related sandstones (VALLONI 1985). The oceanic-arc sources are also recorded by geochemical signals in mudrocks, providing a significantly elevated concentrations of Cr and Ni (Cr~150 ppm, Ni>100 ppm) and the high correlation in Cr/Ni ratios (r = 0.90). Such high values in mudrocks indicate the sutures after lithotectonic collision (GARVER et al. 1996). Serpentinitic sandstones are generally also very rich in spinel detritus (up to 80 % in heavy mineral fraction), having apparently the same origin.

The provenance of serpentinitic sandstones should be related to ophiolitic sources, which were dragged out on the collisional edge of the Central Carpathian plate above the zone of subduction. Their occurrence indicates a suture zone of the Tertiary collision between the Central Carpathian Paleogene Basin and the Klippen Belt. The preservation of fragile clasts of serpentinites reveals the deposition from dilute turbidity currents. In high-density currents with dispersive pressure and grain collisions the serpentinites should be almost destroyed. Accumulation of these clasts could also resulted from flow-stripping processes and hydrodynamic separation, when the elevated fluid mass was able to concentrate the lighter serpentinite grains.

CRITELLI, S. & INGERSOLL, R.-V. (1994): Sandstone petrology and provenance of the Siwalik Group (Northwest Pakistan and Western-Southeastern Nepal). - Jour. Sed. Research, **64/4**: 815-823.

DICKINSON, W.-R., BEARD, L.-S., BRAKENRIDGE, G.-R., ERJAVEC, J.-L., FERGUSON, R.-C., INMAN, K.-F., KNEPP, R.-A., LINDBERG, F.A. & RYBERG, P.T. (1983): Provenance of North American Phanerozoic sandstones in relation to tectonic setting. - Geol. Soc. Am. Bull., **94**: 222-235.

GARWER, J.-I., ROYCE, P.-R. & SMICK, T.-A. (1996): Chromium and nickel in shale of the Taconid foreland: A case study for the provenance of fine-grained sediments with an ultramafic source. - Jour. Sedim. Research, **66/1**: 100-106.

VALLONI, R. (1985): Reading provenance from modern marine sands. - (In: ZUFFA G.G. (ed.): Provenance of Arenites), NATO, ASI (Dordrecht), Series No. 148, D. Reidel, 309-332.

Organic matter distribution and variations of isotopic composition of organic carbon in Cambrian siliciclastic rocks in Baltic region

BITYUKOVA, L.*, BITYUKOV, M.**, SHOGENOVA, A.*, RASTENIENE, V.***, SLIAUPA, S.***, ZABELE, A.****, LASHKOVA, L.***, EIHMANIS, E.*****, KIRSIMÄE, K.******, JÖELEHT, A.****** & HUENGES, E.******

*Institute of Geology at TTU, Tallinn, Estonia, lida@gi.ee,**Institute of Chemistry at TTU, Tallinn, Estonia, ***Institute of Geology, Vilnius, Lithuania, ****University of Latvia, Riga, Latvia, *****Riga Technical University, Riga, Latvia, ******Institute of Geology, TU, Tartu, Estonia, *******GeoForschungsZentrum Potsdam, Germany

Cambrian rocks are widely represented on the territory of East Baltic region except some local positive structures and south-east part of Lithuania. Geology and lithology of Cambrian deposits were studied very detail. In the structural plan the studied area is subdivided into three regions: Northern, Eastern and Western (PASKEVICIUS 1997). The Cambrian rocks are presented by main types of siliciclastic rocks (sandstones, siltstones, claystones and argillites). These deposits were formed during some sedimentary cycles in the shallow water marine basins. The thickness of Cambrian rocks varies in wide limits depending on the dislocation in structural facies zones on the studied territory. In Northern Region the thickness of deposits is up to 80-100 m, in Eastern region ranges from 60 to 130 m and the highest thickness reaches up 250 m in Western region.

100 rock samples from main stratigraphical units from Lower and Middle Cambrian successions were studied in order to estimate the variations of organic matter concentrations and isotope composition of organic carbon. Rocks were sampled from 21 boreholes located on the territory of the Baltic States (12 boreholes located in Estonia, 5 boreholes in Latvia and 4 boreholes in Lithuania). The studied Cambrian rocks from Estonian successions were represented mostly by siltstones and claystones, from Latvia by clayey siltstones and in rare causes by sandstones and from Lithuania