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Shallow Marine Benthic Communities in the Late Eocene Carbonate Platform Placed between the Eastern Alps and Dinarids (Central Slovenia, NW Croatia)

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Paleogeographically, the studied area is placed south of the gradually opening Paratethys basin, in the northern realm of the Neotethys, and half-way between two structural units (bioprovinces), the Eastern Alps and Dinarids (Premru, 2005).

The transgression in the late Eocene created marine conditions in two separated regions, at the SW margin of the Adriatic-Dinaric carbonate platform and northern margin of the Dinaric platform in Slovenia, and further to the NE along the platform margin in NW Croatia (Rogl, 1998; Simunic *et al*., 2000). The geotectonic interpretation assigns this area to the Periadriatic tectonic zone (Drobne *et al*., 2000b; Jelen *et al*., 2000; Placer 2000).

In order to define the biostratigraphic age and the depositional environments of the area, several sections (Povlak, Sustarica, Ravna gora, and Visnjica) have been studied (Drobne *et al*., 2000a, b; Cosovic *et al*., 2000a, b). Larger foraminifers (*Nummulites* species in particular) indicate an Early Priabonian age, SBZ 19 (Serra-Kiel *et al*., 1998), and sedimentation in a warm, oligotrophic sea within the photic zone. Mud-supported limestones (wackestones to packstones) alternating with coral-bearing limestones occur at all studied sections. They contain highly diversified and abundant associations of foraminifers, algae, corals, bryozoans, annelid tubes, and echinoid remains. Small miliolids, sphaerogypsinoids, asterigerinids, amphisteginids, orbitolil-

itids, orthophragminids, nummulitids, and alveolinids (*Borelis* spp., *Glomalveolina ungaroi*) are common in the studied sediments. The nummulitid assemblage shows the greatest abundance and the highest species diversity, e.g. *N. fabianii*, *N. retiatus*, *N. stellatus, N. incrassatus*, *Operculina gomezi*, *O. alpina* and *Pellatispira madaraszi*. The last species has been found in the Sustarica section (this is the first and until now the only record of this species in this region and, this fact could be due to poor exposure of Eocene deposits in the region). The presence of species absent in the Dinarids suggests open communication of the studied area with the Eastern Alps to the northwest and to the Transdanubian Eocene basin to the east.

Within the platformal environments, there were variations in facies including: (1) Larger foraminiferal – coral wackestones, (2) Nummulitic wackestones to packstones, and (3) Orthophragminidal wackestones. The abundance of corals, encrusting foraminifers (*Fabiania* sp., *Haddonia* sp.), porcelaneous foraminifers, dasycladales and coralline red algae, and *Gyroidinella* specimens, are typical for high energy, shallow water settings (Boselini & Papazzoni, 2003). The presence, higher in the section, orthophragminids with flat and large tests associated with flat operculinids and encrusted skeletal remains (Povlak, Visnjica, Ravna gora sections) imply a low energy, lower euphotic zone. The succession can be interpreted as an increase in water depth from subtidal to the upper part of the lower photic zone.

Boselini, F.R. & Papazzoni C.A., 2003, Acta Paleontologica Polonica, 48 (2): 279-292.

Cosovic, V., Drobne, K., Sikic, L. & Turnsek, D., 2000a, Annali Universita di Ferrara, 8 (suppl): 140-141

Cosovic, V., Simunic, A., Drobne, K. & Turnsek, D., 2000b, Annali Universita di Ferrara, 8 (suppl): 141-147

Drobne, K., Cosovic, V & Turnsek, D., 2000a, Annali Universita di Ferrara, 8 (suppl): 107-114

Drobne, K. Cosovic, V., Turnsek, D. & Pavlovec, R., 2000b, Annali Universita di Ferrara, 8 (suppl): 129-133

Jelen, B., Baldi-Beke, M., Cimerman, F., Car., J., Cosovic. V., Drobne, K., Fodor, L., Kedves, M., Marton, E., Monostori, M., Skaberne , D., Toumarkine, M., Zagorsek. K., 2000, Annali Universita di Ferrara, 8 (suppl.): 99-104.

Placer, L., 2000, Annali Universita di Ferrara, 8 (suppl.): 97-99.

Premru, U., 2005, Slovenian Geological Survey, 1-518.

Rogl, F., 1998, Ann. Naturhist. Mus. Wien, 99A: 279-310.

Serra-Kiel, J., Hottinger, L., Caus, E., Drobne, K., Ferrandez, C., Jauhri, A.K., Less, G., Pavlovec, R., Pignatti, J., Samso, J.M., Schaub, H., Sirel, E., Strougo, A., Tambareau, J., Tosquella, J. & Zakrevskaya, E., 1998, Bull. Soc. Geol. France, 169: 281-299

Simunic, A., Avanic, R., Cosovic, V., 2000, Annali Universita di Ferrara, 8 (suppl): 135-139