

Bulog limestone and volcano-sedimentary peperites of Željeznica river (southern Montenegro)

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Lithostratigraphic mapping units of Anisian formations in the southern Montenegro are: the Ravni Formation, the Bulog Formation, Crmnica conglomerates, and the Tuđemili Formation (Čađenović *et al.*, 2014). The Anisian succession near the fortress Crni krš, in the valley of Željeznica River starts with red nodular hemipelagic limestones, consisting of wackestones to packstones with bivalves. Upsection continue a hemipelagic environment with stratified intercalations of volcanic rocks and tuffs. The pyroclastic peperites represent in this depositional facies sharp edged chunks of andesites within an altered muddy sediment matrix. The Early Illyrian conodont microfauna from the Bulog Limestone above the peperites yielded *Gladigondolella tethydis* and *Paragondolella bifurcata*.

In the locality near the Željeznica River, a scarce ammonite fauna, also of Illyrian age, was collected. It is represented *Lanceoptychites indistinctus* (Mojsisovics), *Flexoptychites flexuosus* (Mojsisovics), *Flexoptychites* sp., *Philippites erasmi* (Mojsisovics), *Leiophyllites* cf. *suessi* (Mojsisovics), *Parapinacoceras schneideri* (Welter) and *Costigymnites? palmai* (Mojsisovics) that would point to the *Paraceratites trinodosus* Zone, very common in the Dinarides.

The Middle Anisian carbonate ramp (Ravni Formation) was drowned in the late Middle Anisian (Late Pelsonian) by the open-marine limestones of the Bulog Formation, due to the opening of the Neo-Tethys Ocean. The break-up formed on the continental shelf a horst-and-graben morphology that was accompanied by regional volcanism. Beside the Late Pelsonian mobilization of older rocks on the newly formed escarpments, also the extensional regime of the Illyrian created a paleorelief with intense volcanism. Pyroclastic flows and brecciation resulted in mass transport deposits with hydrothermal alteration effects.

Acknowledgements. Carried out in the frame of the Scientific-Technological-Cooperation Austria-Montenegro, Project ME05/2017.

REFERENCES

Čađenović, D., Milutin, J., Đaković, M., Radulović, N. 2014. Anisian carbonates of Crmnica and surroundings (in Montenegro). *Proceedings of the XVIth Serbian Geological Congress*, 63–71.