(AAS), inductively coupled plasma – mass spectrometry (ICP-MS) and neutron activation analysis (NAA). All data are statistically processed, and appropriate maps of distribution are prepared for 38 chemical elements.

Based on a comparison of statistical parameters, spatial distribution of particular elements and results of cluster and factor analysis, four main geochemical associations were identified: 1. The association connected with the Neogene and Quaternary volcanism (Ba, Be, Ce, Hf, K, La, Rb, Th, Tl, U, and Zr); 2. Association of siderophile elements (Co, Cu, Fe, Mn, Sc, Ti, and V); 3. Association connected with ophiolites and Mesozoic ultrabasic magmatic rocks of Vardar zone (Cr and Ni) and 4. Chalcophile (sulphide) elements (As, Bi, Cd, Pb, Sb, Sn, and Zn).

*Keywords:* *geochemistry, atlas, soil, North Macedonia*

# A New Upper Jurassic Bauxite Occurrence at Mt. Lugberg, Oberösterreich

**Timotheus Steiner[1*], Hans-Jürgen Gawlick[1] & Frank Melcher[1]**

[1] *Montanuniversität Leoben, Franz Josef-Straße 18, 8 700 Leoben, Austria*

* corresponding author: Timotheus.Steiner@gmail.com

On top of the Upper Kimmeridgian/Lower Tithonian shallow-water limestones of the Wolfgangsee Carbonate Platform, the northernmost part of the Plassen Carbonate Platform Group (GAWLICK et al., 2009) at Mt. Lugberg, we detected a so far unknown bauxite occurrence. It is located at the Eastern end of the Wolfgangsee at Mt. Lugberg at N47°44.623' E13°30.521' (WGS 84). The occurrence is of a lens shape of about 100x50 m size and shows a remarkably flat surface forming a step in the slope. This can either be explained by ancient mining without reported evidence, preferred infilling of an ancient karstic hole or glacial erosion of the soft bauxite. The host rocks are Upper Kimmeridgian–Lower Tithonian open lagoonal near-reefal grainstones to packstones with benthic foraminifera, numerous large crinoid fragments, and dasycladacean algae (SCHLAGINTWEIT et al., 2005).

The bauxite was studied using XRD, microscopy and SEM. The XRD yielded boehmite, chromite, and berthierine. The bauxite is hard and has an ooidic texture with a microgranular matrix richer in Si than the ooids which are enriched in Al. The ooids have an average size of 0.3 to 0.5 mm, and there are also few pisoids and their broken fragments, the latter are in some cases incorporated in ooids. Many ooids have cores of iron oxides and hydroxides, rutile, or chromite of presumably ophiolithic origin (Fig. 1). Rare accessory minerals are zircon with up to 3% Hf and monazite. At the margins of the occurrence, iron-rich breccias with carbonate clasts occur, presumably an under-ore breccia over the karstified bedrock (BÁRDOSSY 1982). The bauxite is topped by a layer of silty sand, which is followed by yet undated carbonates of the Plassen Group. The chromites indicate clastic input from the erosion of the obducted Neo-Tethys ophiolites (GAWLICK et al., 2009), whereas the presence of rutile, zircon, and monazite points to evolved felsic rocks in the hinterland. Following the model of PAJOVIC (2009), the occurrence can be classified as a primary karst deposit.

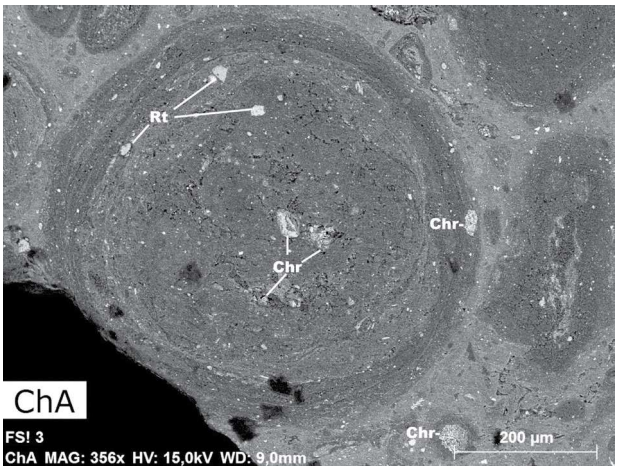


*Figure 1. SEM image of a large ooid. Chr = Chromite, Rt = Rutile.*

*Keywords:* *bauxite, Plassen Platform, Upper Jurassic*

References

BÁRDOSSY, G. (1982): Karst Bauxites. Vol. 14. Amsterdam Oxford New York: Elsevier.

GAWLICK, H.J., MISSONI, S., SCHLAGINTWEIT, F., FRISCH, W., KRYSTYN, L., BLAU, J. & LEIN, R. (2009): Jurassic Tectonostratigraphy of the Austroalpine Domain. Journal of Alpine Geology, 50, 1-152.

PAJOVIC, M. (2009): Genesis and Genetic Types of Karst Bauxites. Iranian Journal of Earth Sciences, 1, 44-56.

SCHLAGINTWEIT, F., GAWLICK, H.J. & LEIN, R. (2005): Mikropaläontologie Und Biostratigraphie Der Plassen-Karbonatplattform Der Typlokalität (Ober-Jura Bis Unter-Kreide, Salzkammergut, Österreich). Journal of Alpine Geology, 47, 11-102.