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Revision of the „Robulus-Schlier“ in Austria – A stratigraphic enigma in the North Alpine Foreland Basin

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The recent mapping campaign of the Geological Survey of Austria (Geosphere Austria) in Upper Austria caused the revision of the so called „Robulus-Schlier“. It is a stratigraphic unit of the miocene North Alpine Foreland Basin in Austria and is exposed extensively in the vicinity of Linz. It is one of the most common units on the surface in Upper and Lower Austria. Nevertheless, it is very poorly investigated and its precise stratigraphic age and lateral range is still uncertain.

Therefore, we studied the „Robulus-Schlier“ in detail using micropalaeontology, nanoplankton, magnetostratigraphy, lithofacies and chemostratigraphy. Under investigation is an artificial outcrop in Upper Austria, exposing 30 meters of the marine fine-grained sediment. Additionally a composite profile in Lower Austria was used for comparison.

We recognized strong stratigraphic and lithofacies differences between the „Robulus-Schlier“ of Upper and Lower Austria. Therefore, we suggest the definition of a new stratigraphic term for the „Robulus-Schlier“ in Upper Austria and suggest further research for the eponymous deposits in Lower Austria. For interpretation of present deviations, we also considered varying tectonic regimes along the alpine thrust front, which was still active during the deposition. Finally, a large scale palaeogeographic concept was constructed for the depositional time of the „Robulus-Schlier“ in Austria, possibly contributing to the understanding of North Alpine Foreland sediments and Alpine tectonics.

Session: *Pangeo workshop: Regional Geology*

Keywords: *Molasse, Miocene, Ottnangian, Stratigraphy*