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## **Sedimentology of a continuous Givetian-Frasnian carbonate succession in Sauerland (Germany) and MS comparison with the time-equivalent ones of Ardennes (Belgium) and Moravia (Czech Republic)**

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This study focuses on the continuous Givetian-Frasnian section of the abandoned Burgberg quarry (Messinghausen Anticline, northern margin of the Rhenish Mountains). The exposed section (102 m thick) covers a well constraint stratigraphic interval starting at the base of the Givetian (STRITZKE 1991, ABOUSSALAM *et al.* 2003) and according to STRITZKE (1991) and our new datations ending within the Lower Famennian.

The Middle-Upper Devonian shelf-edge within the Rheinisches Schiefergebirge can be traced from the supposed position along the southern rim of the Dinant Syncline and the Eifel Synclines, northwards along a line connecting the southern margin of the Devonian reefal outcrops of Attendorn and Brilon (KREBS 1967, 1974). The depositional setting of the investigated section corresponds to complex slope and basinal environments where reworked material from the proximal Brilon platform (located to the north) and basin deposits coexist. Thus, this section allows to follow the evolution of the Givetian-Frasnian Brilon platform (e.g., MACHEL 1990, STRITZKE 1990, 1991) in a deeper setting. Petrographic analysis of more than 300 thin-sections leads to the identification of 10 microfacies which are integrated into a paleoenvironmental model. Microfacies curve evolution shows two main trends. A shallowing upward trend ending within a typical proximal slope setting (dismantling of the platform) followed by a deepening upward trend which is characterized by several meter of pelagic mudstone within the upper part of the studied section.

Magnetic susceptibility variations in sedimentary rocks, have commonly been interpreted as related to variations of detritic inputs through climatic or sea level changes (CRICK *et al.* 1994). The magnetic susceptibility (MS) study of more than 330 samples from this long-time fore-reef carbonated succession is an opportunity to better constraint our sedimentological interpretations. To do so, we propose a comparison between general MS trends and some parameters such as microfacies and relative sea level fluctuations interpreted on the basis of the sedimentological study. The relatively long stratigraphic interval covered by the Burgberg section offers a good opportunity to compare our data with the time equivalent Devonian sections of the Ardennes (Belgium) and Moravian karst area (Czech Republic) (BOULVAIN *et al.* 2010). And thus to test the magnetic susceptibility tool for long distance correlation between stratigraphically well constraint sections. The comparison of the MS trends from the Givetian-Frasnian Burgberg section (Sauerland) and the time-equivalent ones from Czech Republic (Moravia) and Belgium (Ardennes), despite a different background shows a surprising similarity.

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