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# Trilobite faunal dynamics on the Devonian continental shelves of the Ardenne Massif and Boulonnais (France, Belgium)

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During the Devonian the sedimentation on the continental shelves of Ardenne Massif and Boulonnais has changed from a mixed siliciclastic-carbonate ramp (Eifelian), through a carbonate barrier reef (Givetian) and then to a detritic influx with local mud-mounds (Frasnian). Here we analysed the faunistic dynamics of the trilobite associations through the changing environment. We used multivariate analyses (clustering and ordering) to discriminate the trilobite associations within 67 different samples. Three previously known communities and one new were recognised: the Eifelian Mixed association, the Givetian *Dechenella* association and the two Frasnian *Bradocryphaeus* and *Scutellum–Goldius* associations. These trilobite faunas present a progressive ecological specialisation. The Mixed association occurs both in the ramp or carbonated (local reef developed on the ramp) facies without any significant difference in its composition. The *Dechenella* fauna occurs preferentially close to barrier reefs, but can also survive during short periods of detrital input. The two Frasnian communities show a strong relationship with their environment. The *Scutellum–Goldius* association is only found in reef systems, whereas the *Bradocryphaeus* flourishes exclusively in lateral facies.

**Key words:** Trilobita, faunal succession, reefs, Devonian, France, Belgium, Ardenne Massif, Boulonnais.

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