

## **Silurian anoxic events at the Cellon Section (Austria) through an ichnofabric eye**

Andrea Baucon, Annalisa Ferretti, Hans Peter Schoenlaub

The Ordovician and Silurian periods are characterized by major biotic and geochemical events, among which large carbon isotope excursions associated with mass extinctions and anoxia.

The Cellon section (Austria) is an ideal case study to understand the dynamics of these events. In fact, it represents not only a reference section for the Silurian of the world, but also it provides an almost continuous sedimentary record ranging from the Upper Ordovician to the Lower Devonian.

The goal of this study is to understand the relationship between the mentioned biotic and geochemical events and organism-substrate interactions. To this aim, the ichnofabric approach – considering the aspects of sediment texture imparted by biogenic activity – is applied to the Cellon Section. Results show three oxygen-related ichnofabrics:

1. The *Thalassinoides* ichnofabric is characterized by intense bioturbation (bioturbation index 5-6) and the dominant presence of *Thalassinoides* burrows. Because of the high bioturbation index, this ichnofabric is interpreted to reflect oxygenated condition of bottom waters.
2. The *Chondrites* ichnofabric is characterized by low bioturbation (BI 0-1) and the monoichnospecific presence of *Chondrites*. Because of the chemosymbiotic, sulphide-mining strategy of the *Chondrites* producers, this ichnofabric is interpreted to represent dysoxic conditions.
3. The unbioturbated ichnofabric is characterized by laminated, unbioturbated (BI 0) fabrics. The absence of benthic activity suggests widespread anoxic conditions.

Data interpretation suggests that the onset of anoxic events is characterized by a relatively abrupt transition from sediment-feeding strategies (*Thalassinoides* ichnofabric) to chemosymbiotic ones (*Chondrites*).