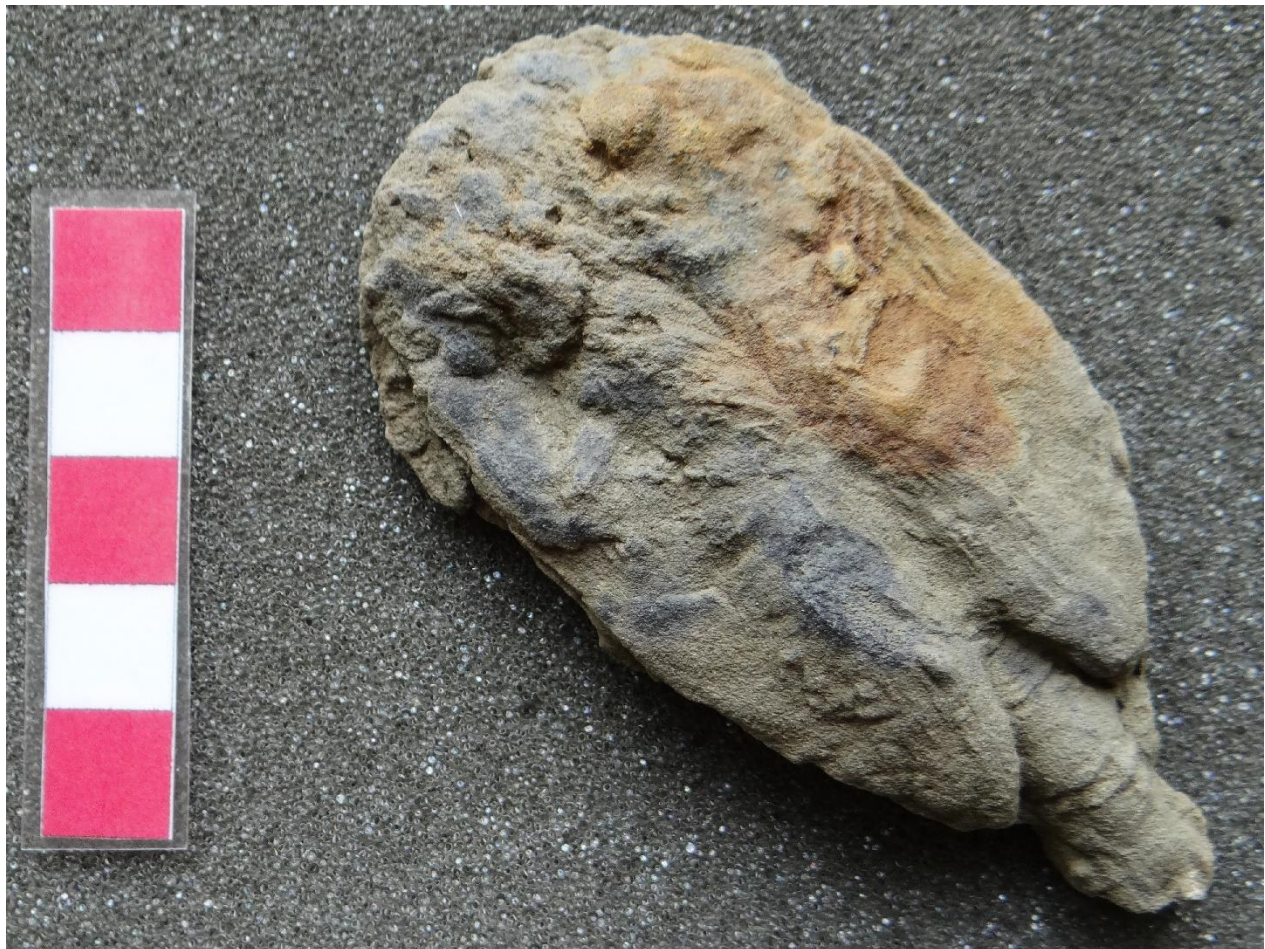


International Ichnofabric Workshop 16A (virtual)

Program and Abstracts



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Alph hartselleanus Kopaska-Merkel & Rindsberg, 2015, hyporelief, scale in cm.
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Ichnofabric analysis of transgressive shoreface deposits on the Russian Platform: insight from the Bathonian-Callovian Lukoyanov Formation sands

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The middle Bathonian time in the central part of Russian platform was marked by a remarkable regression, resulting in the long-term existence of a shallow-water brackish epicontinental sea. In the late Bathonian, a new marine transgression started that expanded fully during the earliest Callovian. Stratigraphically, in most sections the Bathonian-Callovian boundary corresponds to a hiatus, except in the Saratov region where the succession is nearly complete. We studied the Bathonian-Callovian boundary interval in Mordovia, where it is represented by the so-called Lukoyanov Formation, containing thick, medium- to fine-grained sands occasionally interrupted by thin mud layers with asymptotic cross stratification and ripple lamination along with low-angle climbing ripples and occasional herringbone cross-stratification. Previous biostratigraphic studies along with fresh collections of ammonites from the sections have helped in establishing a precise time context for the studied sections from the *Cadoceras barnstoni* to *Cadoceras elatmae* ammonite biozones. Systematic ichnological and ichnofabric analysis conducted by correlating several local sections over the area suggest the presence of a diverse trace fossil assemblage with abundant occurrence of *Asterosoma*, *Diplocraterion*, *Hantzschelina*, *Maikarichnus*, *Ophiomorpha*, *Phycodes*, *Polykladichnus*, *Rosselia* and *Tisoa*. Ichnofabric analysis of deposits suggests relatively high bioturbation indices (BI) ranging from BI 3 to BI 5 formed by simple tier colonization. At several localities, tracemaker colonization showed delayed resumption with change in colonizing community. Five characteristic ichnofabrics (viz., *Ophiomorpha*, *Diplocraterion*, *Asterosoma-Rosselia*, *Polykladichnus-Tisoa*, *Tisoa*) are delineated that typify the upper-middle shoreface to lower shoreface environmental transition. The upper shoreface paleoenvironment is characterized by a succession of middle- to deep-tier *Ophiomorpha* ichnofabric grading upward to middle-tier *Diplocraterion* ichnofabric, with absence of a shallow tier. The *Polykladichnus-Tisoa* and *Tisoa* ichnofabrics occupy deep-tier ichnofabric and represents a middle shoreface paleoenvironment near the fair-weather wave base. The *Asterosoma-Rosselia* ichnofabric contains densely colonized traces that represent a fully expanded profile from shallow to deep tier belonging to the lower shoreface paleoenvironment. Thus, the widespread distribution of the trace-fossil-rich sediments along the basin periphery, lacking wave and tidal ravinement surfaces, suggests that the late Bathonian transgression was of a passive nature on the Russian Platform.

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