Integrated stratigraphy of Carnian deposits in the Dinaric Alps, Glamoc (SW Bosnia-Hercegovina)

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Abstract

From the Late Triassic time interval, particularly the Carnian has attracted ample attention as it represents a period of major innovations in the marine terrestrial ecosystems such as the dawn of marine nannoplankton and crinoids and the dawn of dinosaurs and "modern conifers". Most of the Carnian successions in the Tethys realm, however, are characterized by marked changes in the lithofacies from early Carnian limestone dominated sequences to a siliciclastic and shale dominated interval earlier described as the Reingraben event, and back to carbonate systems in the late Carnian. Because of these marked changes continuous palynological records covering the entire or most of the Julian and Tuvalian substages are still lacking. Here we present the first results of a new detailed palynological study of an almost complete Carnian succession in the Dinaric Alps near Glamoc, SW Bosnia Hercegovina, which covers most of the Julian and the entire Tuvalian. The palynostratigraphic assemblage zones are calibrated with marine biochronology based on ammonoids and conodonts and correlated with a bulk Corg-isotope curve.
Significant changes occur in the terrestrial palynomorph assemblages through the studied section. The terrestrial palynomorph assemblages are mainly dominated by pollen of the *Circumpollis* group (*Praecirculina, Partitisporites, Duplicisporites, Camerosporites*, as well as *Granuloperculatipollenites* and *Classopollis* in the highest part of the section), vesicate pollen (*Enzonalasporites*, *Vallasporites*) and bisaccate pollen (*Ovalipollis*, *Samaropollenites*, *Cedripites*, *Infernopollenites*, *Triadispora*, *Voltziaceaesporites*, *Brachysaccus*, *Lueckisporites*, *Taeniaesporites*) in particular in the lower part of the section. Spores occur in low numbers (5-10%) mainly in the lower part of the section.

The following 3 major pollen assemblage zones can be distinguished and summarized as follows:

Enzonalasporites – Partitisporites assemblage zone (Julian part of section): This assemblage is characterized by the high abundances of the vesicate pollen *Enzonalasporites vigens* and several members of the *Partitisporites – Praecirculina* group (*Partitisporites novimundanus*, *Praecirculina* granifer, etc). These prominent pollen elements are accompanied by a diverse group of bisaccate pollen such as *Ovalipollis* spp., *Samaropollenites speciosus*, *Cedripites microreticulatus*, *Infernopollenites* spp., *Triadispora* spp., *Voltziaceaesporites*, *Brachysaccus*, *Lueckisporites singhii*, *Taeniaesporites* and others. Most of these bisaccate pollen types, except *Ovalipollis* spp., have their highest occurrence at or near the top of this assemblage zone.

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Camerosporites - *Vallasporites* – *Aulisporites* assemblage zone (Tuvalian I and II): This assemblage is rather monotonous and dominated by *Camerosporites secatus* (up to 60%) accompanied by *Vallasporites* and *Aulisporites*.

Granuloperculatipollenites – *Classopollis* assemblage zone (Tuvalian III): This assemblage is characterized by a decrease in the abundance *Camerosporites secatus* and the first occurrence / significant increase of *Granuloperculatipollenites* and *Classopollis meyeriana* (together up to 80%).

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