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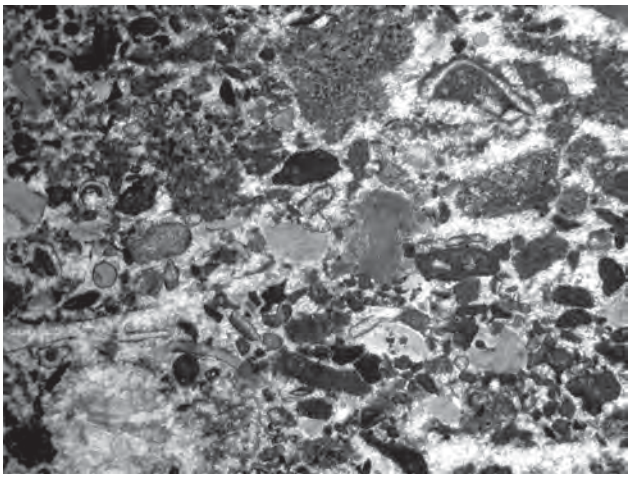

Fig. 1: Microfacies of the Late Carnian.drowning sequence of the Wetterstein Carbonate Platform in the Zlatibor Mountain (SW Serbia). Coarse-grained crinoid-rich grainstone intercalated in filament-bearing wacke- to packstones with a lot of different shallow-water clasts. Several components are incrusted (Sample SRB 428). This microfacies resembles perfectly the higher part of the Waxeneck Formation in the Northern Calcareous Alps. Width of photo: 1.4 cm.

The Wetterstein Carbonate Platform evolution in the Zlatibor Mountain (Dinarides, Sirogojno, SW Serbia)

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Triassic shallow- and deep-water carbonates occur together with Triassic radiolarites widespread as olistoliths and slides in the Middle to early Late Jurassic mélange of the Dinaridic Ophiolite Belt in the Zlatibor Mountain (DIMITRIJEVIC & DIMITRIJEVIC 1991). These slides occur tectonically on top of the Drina-Ivanjica Palaeozoic and the late Middle to early Late Jurassic ophiolitic mélange respectively the ophiolites and not below as interpreted before (DIMITRIJEVIC & DIMITRIJEVIC 1991). These slides were formerly interpreted to derive from the Drina-Ivanjica Unit, where they should have formed the original sedimentary cover, disintegrated in the Late Jurassic. According to our investigations the slides of this carbonate-clastic mélange differ in age, facies and palaeogeographic origin. The carbonate rocks are originated from a relatively broad shelf in the Triassic facing the Neotethys Ocean to the east, maybe reaching from the adjacent Drina-Ivanjica Unit further to the east. In contrast, the Triassic radiolarites and the ophiolitic rocks, which occur mostly below the carbonatic mélange, derive from the Neotethys Ocean basin floor. These mixtures of different rocks forming mélanges are part of the Dinaridic Ophiolite Belt.

A kilometre-sized block in the Zlatibor carbonate mélange provides a complete succession of the Wetterstein Carbonate Platform (WCP) evolution, dated by means of conodonts. The complete section of the WCP evolution starts in the Klisura Quarry (northwest of Sirogojno) with bedded cherty limestones on top of a bentonite layer, which forms a thrust on top of Late Anisian Bulog Limestones and can be followed along a forest road in westward directions and than along the road from Sirogojno to Rozanstvo. The lower part of the succession is preserved in the Klisura Quarry and the upper part of the succession including the drowning event is preserved in an old quarry and few other places along the main road in direction Rozanstvo. The age range of the Wetterstein Formation as part of Wetterstein Carbonate Platform remains until now enigmatic and is estimated as Ladinian to Late Carnian. The Wetterstein Formation should pass directly in the Norian/?Rhaetian Dachstein Limestone without interruption of e.g., siliciclastics, drowning-sequences or longer lasting gaps.

According to our new data the platform starts to prograde in Early Carnian times over hemipelagic Late Ladinian cherty limestones with fine-grained allodapic limestones (Trnava Formation). Shallow-water reef-slope and reefal limestones evolved in the Early Carnian (Wetterstein Formation). The top of the platform is recrystallized by karstification and partly dolomitized. After a period of

omission caused by uplift, new subsidence started in early Late Carnian. This is documented by a drowning/flooding sequence of same age, which corresponds perfectly to the evolution of the Waxeneck-Formation in the south-eastern Northern Calcareous Alps. The evolution of the onset and the drowning of the Wetterstein Carbonate Platform prove a palaeogeographic derivation of this block in the mélange from the more outer shelf area, but still in a shallow-water carbonate platform position; this palaeogeographic position is especially confirmed by the new pulse of subsidence in the Late Carnian after a long lasting phase of omission. The evolution of the Wetterstein Carbonate Platform in the Inner Dinarides corresponds perfectly to successions known from the southern parts of the Northern Calcareous Alps or the southern West Carpathians.

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How many Middle Triassic carbonate platforms existed in the Outer Dinarides? New insights from the Velebit Mountain (Croatia)

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The Middle Triassic period in some parts of the Outer Dinarides, as best represented in the Velebit Mountain, was characterized by a complex pattern of shallow-water carbonates, volcanics with associated radiolarites, hemipelagic limestones and partly siliciclastics. Two different shallow-water evolutions were distinguished, dated with shallow-water organisms, mainly calcareous algae: a lower horizon in the Anisian and an upper horizon in the Ladinian. According to the actual knowledge Ladinian extensional tectonics created local troughs and a highly complicated relief, partly associated with volcanic activity inbetween the shallow-water areas. In Late Ladinian or around the Ladinian/Carnian boundary local uplift led to karstification of the Ladinian Diplopora Limestones. Finally the succession was partly topped by fluviatile and continental deposits: fine- and coarse-grained siliciclastics as well as bauxites, estimated as Ladinian to Early Carnian in age.

New results, based on conodont data, indicate even more complicated relationships: during the Late Anisian the pre-existing shallow-water carbonate ramp lower Diplopora Limestones (equivalent to the Ravni Formation - Dedovici Member of DIMITRIJEVIC & DIMITRIJEVIC 1991, in the Dinarides of Serbia, or to the Steinalm carbonate ramp of the Eastern Alps and elsewhere in the eastern Mediterranean alpine mountain belt - LEIN & GAWLICK 2008, SUDAR et al. 2008) drowned due to the block tilting. This drowning is in some areas characterized by the onset of a thick succession of volcanoclastics and pillow basalts with overlying radiolarites of Late Anisian age as proven by radiolarians (e.g., Donje Pazariste area) (MISSONI et al. this volume). Hemipelagic carbonates were not found up to now directly on top of the lower Diplopora Limestones, therefore this drowning event cannot be dated directly in the Velebit Mountain. Only in the Sveti Rok section *Gondolella bifurcata* (Late Pelsonian to Illyrian) has been found below the lower metabentonite layers. Therefore the drowning of the Steinalm-type ramp is estimated as Late Pelsonian, contemporaneous to the onset of the Bulog Limestone on top of the Anisian algal reefs in Bosnia and Herzegovina (PIA 1935a, b), an event well dated in the Dinarides (v. HAUER 1888, BUKOWSKI 1894, FISCHER & JACOBSHAGEN 1976). This view is also confirmed by the Late Illyrian to Early Fassanian conodonts (*Gladigondolella tethydis*, *Gondolella trammeri*, *Gondolella lindströmi*, *Gondolella* cf. *elongata*, *Gondolella* cf. *mesotriassica*), which were extracted from slump-deposits and slope breccias overlying the volcanic sands resp. bentonites (sections Donje Pazariste and Sveti Rok). A characteristic feature of these slump deposits is the occurrence of coarse-grained limestones with shallow-water, partly reefal material. This proves the existence of shallow-water platform areas around the Anisian/Ladinian boundary. In sections from the Donje Pazariste area these slump deposits were overlain by thin-bedded hemipelagic limestones containing only sporadically fine-grained shallow-water material. This sequence started in the early Fassanian and prevailed until the base of the Langobardian 1, as dated by the occurrence of *Gladigondolella tethydis*, *Gondolella trammeri* and *Gondolella lindströmi* in the lower part of the succession, as well as *Gladigondolella tethydis*, *Gondolella trammeri* and *Gondolella inclinata* in the upper part of the succession. Therefore the platform, which was established around the Anisian/Ladinian boundary, was partly drowned in the Early Fassanian, but partly continued, as proven by fine-grained shallow-water input into the basin. In Langobardian 1 a rapid progradation started over the basin, as documented in the Velebit Mountains (Donje Pazariste). This platform is known as Diplopora Limestones in the Outer Dinaride, and its progradation is dated by the conodonts from the hemipelagic limestone succession immediately below as Langobardian 1. In the Lika area several hundred metres of the Diplopora Limestones are preserved, and their shallow-marine assemblages were investigated by BAHUN (1963), IVANOVIC et al. (1976), SOKAC (1975), SOKAC et al. (1976a, b, c). On top of this shallow-water reefal limestones occur abruptly hemipelagic cherty limestones, also comprising *Gladigondolella tethydis*, *Gondolella trammeri* and *Gondolella inclinata*. This cherty limestone succession is completely free of shallow-water input. Therefore, the Diplopora Reef Limestones probably represented a very short-living carbonate platform of only Langobardian 1 age. These cherty limestones were partly overlain by volcanics and recrystallized radiolarites, while in some areas pillow-lavas topped by radiolarites were also preserved. Later a new platform was established, which