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

started to prograde in Late Langobardian, as proven by the occurrence of *Gondolella foliata* or *Gondolella tadpole* (Donje Pazariste area), and may reach the Early Carnian, as proven by a badly preserved conodont resembling *Gondolella polygnathiformis*. However, this youngest platform does not exceed the Cordevolian, as proven by the occurrence of *Gladigondolella*-ME in reef caves in the Stirovaca area. This platform was partly overlain by coarse-grained siliciclastics, which were, according to the conodont data from underlying deposits, not older than Cordevolian. Most likely these siliciclastics can be correlated with the widespread known Raibl/Lunz/Reingraben event in the Alpine/South Alpine/Dinaride realm (Schlager & Schöllnberger 1974, Lein et al. 1997, Keim et al. 2006).

As result of presented investigations at least three independent shallow-water evolutions in the Middle Triassic may be documented, formed in a highly tectonic regime with intense phases of volcanism in the Late Anisian and Early/Middle Late Ladinian. Both older platforms were drowned and covered by volcanic products; the first event took place during the Late Anisian and the second one in the Late Ladinian. The youngest platform was partly uplifted and partly covered by siliciclastics during the Early Carnian.

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ALPASS - Neue Erkenntnisse über die seismische Struktur des oberen Erdmantels in den Ostalpen

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ALPASS (**AL**pine **PAS**sive **S**eismic monitoring ist ein internationales geophysikalisches Projekt, das sich unter anderem die Erkundung der tieferen Lithosphäre und des Oberen Erdmantels im Bereich der Ostalpen und den sie umgebenden tektonischen Einheiten mit der teleseismischen Methode zur Aufgabe gestellt hat. Ein temporäres seismisches Netz, bestehend aus 57 Stationen war zwischen Mai 2005 und Mai 2006 aktiv. Die Seismogramme dieser Stationen wurden durch Daten von 110 permanenten Stationen (ZAMG, Orfeus, Swiss, LJU, IPEC, GI, SDAC, GRF, Baynet, Geofon, OGI, Trieste University, CSS) ergänzt. Für die Auswertung wurden 83 Erdbeben aus dem teleseismischen Bereich (30-100°) ausgewählt. Die Laufzeiten der P-Phase wurden durch ein Korrelationsverfahren bestimmt. Das im Rahmen der Projekte CELEBRATION 2000 und ALP 2002 erstellte 3D Krustenmodell ermöglichte die Bestimmung der entsprechenden Laufzeitkorrekturen. Für die Inversion der Daten wurden verschiedene Programme benutzt, die zu sehr ähnlichen Resultaten führten. Hier sollen die Ergebnisse, die mit dem Programm von Rawlinson & Sambridge erzielt wurden, gezeigt und diskutiert werden. Die Verteilung der P-Wellengeschwindigkeit im Oberen Erdmantel läßt klar eine annähernd vertikal unter die Plattengrenze zwischen Adria und Europa abtauchende Lithosphäre erkennen. Dieser „slab“ erstreckt sich von der Westgrenze des ALPASS-Gebietes bis zum östlichen Ende des Tauernfensters und reicht bis in ~250 km Tiefe. Er kann der tektonischen Phase nach der Kollision von Adria mit Europa zugeordnet wer-