

Explosive volcanism as precursor of the Julian “Carnica“ Event in northern Montenegro (Durmitor Mega-Unit)

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The demise of the Wetterstein Carbonate Platform (WCP) evolution s. str. (latest Ladinian to earliest Julian) in the Western Tethys Realm is discussed controversially. In the ALCAPA region of the Western Tethys Realm and the Southern Alps the WCP shows a drowning related to the Lunz Event (Reingraben Event, Mid-Carnian Pluvial Episode or Mid-Carnian Wet Intermezzo). The reasons for this turnover are controversially discussed. However, prior to the drowning of the WCP with siliciclastics the platform emerged due to a sea-level drop, and the underfilled accommodation space between the platform areas became restricted deep lagoonal areas with deposition of in parts organic-rich siliceous limestones (Carnica Event), followed by the deposition of fine grained siliciclastics (Reingraben claystones). Whereas in the northwestern part of the Western Tethys Realm including the Outer Dinarides in Croatia, these siliciclastics were widespread deposited, they are practically unknown in the Inner Dinarides to Hellenides. In contrast to the ALCAPA region in the Dinarides/Hellenides a long-lasting stratigraphic gap is common. Carbonate deposition started again earliest in the Late Carnian after the demise and uplift of the WCP in the Julian. However, recently fine-grained Mid-Carnian siliciclastics deposited in an underfilled deep-lagoonal basin between the Wetterstein Carbonate Platform in the Inner Dinarides, namely between the Drina-Ivanjica Mega-Unit to the east and the Durmitor Mega-Unit to the west, fine grained siliceous siliciclastics were described (Džegeruša Formation). From the Durmitor Mega-Unit in northern Montenegro, near the village Pliješevina the contact between basinal limestones above the slope limestones of the WCP is characterized by the change of grey filament- and radiolarian-rich biomicrites (Cordevolian dated by *Gladigondolella malayensis* and *Gladigondolella*-ME, *Paragondolella polygnathiformis*, *Neocavitella* sp. juv. and *Paragondolella tadpole*) to siliceous claystones, black radiolarites and silicified volcanic ashes. This roughly 1.5 to 2 m thick series is overlain by medium grey filament bearing biomicrites with *Mazzaella carnica*, *P. polygnathiformis*, *P. auriformis*, and *N. cavitata*. These results clearly evidence volcanic activity predating the Carnica Event. In contrast to the Late Illyrian to Ladinian volcanism this “Mid-Carnian“ volcanism is practically unknown. To characterize the silicified volcanic ashes, XRD analysis was performed. The Late Illyrian volcanic ashes contain calcite as main component as well as smectite group clays (beidellite, nontronite), microcline, and subordinate mixed layer clays. In contrast to the volcanic ashes of the Late Illyrian the metabentonite of the Mid-Carnian is composed of biogenic quartz, mica-group minerals, smectite-group clays (nontronite), palygorskite/sepiolite and mixed layer clays. The Mid-Carnian metabentonite contains no carbonate. Based on the mineralogical phases a clear difference in the composition of the volcanic ashes can be recognized. A sea-level drop at the beginning of the Julian followed by volcanic activity led to a rapid decrease of carbonate production and the demise of the WCP evolution. The deposition of siliceous and in parts organic-rich limestones (Carnica Event), also improved by the occurrence of glauconite in the XRD analysis, predates the final drowning (ALCAPA) or the uplift (Dinarides) of the WCP.